The Builder.

SATURDAY, JANUARY 15, 1853.

OUR last number, from various causes, has brought upon us a larger number of assenting and dissenting letters than we have received for some time,—a perfect cloud of "Constant Readers," "Old Admirers," and "Subscribers from the First." *En passant* we invite those who address us to adopt more distinctive titles than these, and to write so that what is written can be read. Some are jocose, some pathetic, some applaud, and others abuse: put together they would form a "Complete Letter Writer." There is scarcely one article in the number that has not brought a comment. Judge Gale's Law for Architects; the Adornment of St. Paul's; the Way our National Armoury in the Tower of London is managed; the State of the Burial-grounds; Pipe Sewers; the Half-holiday for Architects' Clerks; and the Effects of the late Storm, have put our readers' pens into active use. The majority of them, however, as it happens,—containing simply opinions given *anonymously*,—go for nothing.

Amongst those of another class, is one from the Rev. W. P. Babington, of St. Martin's Chapel, Camden Town, concerning the burial-ground of that parish. The rev. gentleman says,—

"Your paper of Saturday last contains an article in which allusion is made to the 'disgraceful scenes' witnessed in the 'already closely-packed graveyards of St. Pancras and St. Martin-in-the-Fields.' As chaplain to the burial-ground belonging to the latter parish, I beg to point out an obvious error into which the writer has fallen, and which, if not corrected, may be injurious to the interests of those to whom no blame attaches.

It is quite clear, from the particular mention of the adjacent buildings, that there was no intention of referring to our ground, situate as it is in Pratt Street, Camden Town, and not in the vicinity of St. Pancras Poorhouse. It is certainly not overcrowded, and I am most careful that all burials should be conducted in an orderly and becoming manner. I therefore trust that you will give this letter a place in your next number."

There is one also from the churchwarden of St. Martin's, Mr. George Countze, to the same effect, in the course of which the writer says,—

"As the article is likely to be very prejudicial to the interest of the authorities of St. Martin's parish, I trust you will arrest as speedily as possible the evil consequences which may ensue from the error, by stating the fact, that St. Martin's cemetery is not, at the present time, more than about one-third occupied, and is situated in Pratt Street, Camden Town. A large sum has been expended within a few years in planting it with trees and shrubs, which render it an agreeable ground as a place of sepulture. And every desire is manifested by the respected resident chaplain and sexton, aided by the police, to preserve as much as possible order and decorum when interments of Irish poor take place, which does not happen more frequently than one in twelve months. And I believe I can safely say, that scenes such as described in the article referred to, have not occurred, recently, at all events, in the St. Martin's-in-the-Fields cemetery, at Camden Town."

These gentlemen are correct in supposing, as the context must make obvious to all, that "St. Martin's" was written by a slip of the pen. Instead of the graveyards of "St. Pancras and St. Martin's-in-the-Fields," it should have been "of St. Pancras and *St. Giles's*-in-the-Fields," which adjoin. We cannot, however, exactly participate in the feeling of satisfaction with which they regard the proceedings in the grave-yard of St. Martin's, and will take an early opportunity to tell them why, when, too, we will make more clear the abominations of St. Pancras and St. Giles's. The Press has been lulled asleep by the insufficient Act recently passed: even Mr. Walker holds his peace; and yet in various parts of the metropolis practices fraught with deadly evils are still pursued. Holes are still filled with coffin upon coffin up to within a short depth from the surface,—a fearful fever-still; and little or nothing is being done anywhere towards effecting a sufficient change in the system. Even at Kensington, where, as we said, they were the first to move under the new Act, nothing has been achieved. They were in treaty for a tract of land belonging to Hammersmith, but the negociation has been brought to an end, and we do not hear that they have yet opened another. The health reports show conclusively every week the fatal effects of graveyards, want of pure air, and prevalence of defective drainage; but the lethargic public are content to "run the chance," and leave things as they are.

The letters as to St. Paul's only repeat in other shapes the suggestions already made in our pages. We may state with tolerable certainty that the dean and chapter have *determined* on executing certain adornments in the cathedral. What these may be we are not informed. We venture to suggest to the authorities that the public may justly expect to know what is intended to be done in St. Paul's *before* it is carried into execution. The dean, we have reason to believe, desires only to do what will be creditable and satisfactory to the nation. Mr. Cockerell, we may mention, has ceased to be the Surveyor to the Cathedral: Mr. Penrose holds the appointment. Should the result of the works there be unsatisfactory, will the architect be liable to an action for damages? Judge Gale would say yes.

"I cordially thank you," writes one to us, "for the manner in which you treated Mr. Judge Gale's decision in the case reported last week. If such Lynch law is to pass current as justice you may truly add that a profession already suffering from want of public support now is to be quietly extinguished. The present system of house building is to cut and contrive a plan which shall contain the greatest possible accommodation, and consume the smallest quantity of materials and the least labour, and then to apply to builders notorious for their cutting prices: among such, competition secures a price that pleases the client and meets his views, but the poor architect's troubles then begin: he has alternately to coax and bully to get the works complete, to constantly hear complaints for no neglect of his own, to write letters, dance attendances, and must often shut his eyes to the fact that the work is being done in a different manner to what is described in the specification; and for all this trouble, in the Southampton case on a less outlay than 500*l.* to receive 25*l.* If the time consumed by the architect were estimated by the lowest clerk's wages, the sum would not pay for it. Of course it will be urged that a respectable man would never allow himself to be exposed to insult and annoyance; but, Mr. Editor, the efforts of architects to establish a connection is a struggle that few achieve unless born with influential friends: without such support the very errand-boy has no greater difficulty in rising to become a shopkeeper."

We shall have to return to this subject; as we shall, too, to that of architectural education.

The appeal in favour of a half-holiday for architects' clerks is of course seconded by others in the same position; though some of them scarcely like the tone of the letter, and desire to put the claim on higher ground. None would aid more gladly than ourselves in obtaining for those who are to be hereafter the architects of England time for visiting collections and galleries, opportunities for improvement and healthful recreation. But this resolves itself after all into a question of *salary*.

In connection with the damage done by the recent storm of wind we received some statements as to the injury done to the *Crystal Palace at Sydenham*, which led us to visit the building. We found the damage very much exaggerated, but have, nevertheless, thought it worth while to place before our readers two views, illustrating the most remarkable features of the accident.* The first gives a general view of the portion of the structure most injured, and represents the clearing away of the *débris*. The second illustrates in a remarkable manner the extreme force of the gale. This immense structure, as our readers are doubtless aware, stands on the side of a hill, over which the wind rushed in a perfect hurricane, and with a violence so great, according to the statement made to us, as to carry the column represented in our second illustration off the adjoining brick-work, and several feet from it, in a position nearly vertical. The weight of the column is between 9 and 10 cwt. The immediate cause of the accident, so far as we can learn, was one of the scaffoldings erected for a circular rib over the transept. The wind appears to have torn it up, and so obtaining a sufficient resistance to its fury, swayed and wrenched the structure beneath till both came down and destroyed some of the work in front of and beyond it. One of the upper tier of columns in its fall became inverted, we are told, and stood so buried in the earth. The accident was witnessed by only one man, a stable keeper, so that we could learn nothing that could throw any light upon the manner in which the structure gave way. That the force of the falling mass was terrific may be seen in many instances in broken columns and girders, many of which are shattered into small pieces. The weight of iron alone brought to the ground is variously estimated, but we are confidently informed that the quantity of iron actually destroyed does not exceed 150 tons. Part of a girder was thrown through the glass of the rooms occupied by Mr. Bonomi, (where he is picturesquely at work preparing the *fac simile* of an Egyptian building which is to be set up, with its propylon and covered court), and injured one of the moulds of a capital. In connection with the Egyptian section, there will be a copy of the Tomb of Beni-hassan, the disputed type of the Greek Doric.

All those parts of the building which are finished have stood firm and unshaken, affording good proof of their stability. The whole length of the building is up next the public road, and some of the glazing and painting are done, although for the other side, next the Company's own grounds, only the foundations are in. The position of the building on the side of a hill renders it a much more difficult and onerous work than the structure in Hyde-park. Many of the columns on the low side are raised on brick piers of considerable height, to bring them up to the proper level. The groundworks are in progress, the well has been bored to a depth of 340 feet, found to be sufficient for an ample supply of water, and general activity prevails. The day was not propitious when we visited the spot, but while we were in the upper gallery the sun escaped from the clouds for a few minutes, and lighted brilliantly into view what will not be the least of the many attractions of the "palace,"—one of the most beautiful and extensive prospects in England.

After mention of this colossal undertaking, most matters would seem small and insignificant: we will therefore not dip again into the Letter Box.

* See page 41 of our present number.

NOTES ON FRENCH BUILDINGS, PRINCIPALLY ECCLESIASTICAL.*

THE art of architecture is connected at so many points with the habits, manners, and customs of the people amongst whom it flourishes, and it reflects by its structure and adaptations so much of the influence of climate, government, and the other external circumstances of a nation, that some general knowledge of the subject is essential to every one who would extend his inquiries into men and things beyond the narrow circle circumscribing his own immediate interests. Architecture has been happily termed, "History in Brick and Stone:" it is so; but it is also manners, morals, religions, modes of thought,—petrified—fossilized, so to speak, and preserved for the inquiring minds of future ages, as illustrations of the animated pages of history. But it is not necessary always to contemplate architecture in this retrospective manner. It is equally calculated to throw light on the moving panorama of the living, breathing world around. Comparative anatomy has done much to throw light on the structure and functions of the animal creation, and to raise our admiration of the works of Nature's great architect. Comparative architecture must tend, though in a lower degree, to expand the mind, to furnish it with new ideas, to exhibit the constructive powers of the human intellect under other circumstances than those we have been accustomed to, and, whilst teaching lessons of humility, teach also the capabilities which lie dormant until necessity calls them forth.

The development and progress of architecture amongst our continental neighbours is always an interesting subject, whether considered in reference to the magnificent remains of former times, or to the state of the arts of construction at the present day. The fine feeling of art and the general good taste of our French brethren none will dispute; and if all who visit the continent and are capable of appreciating the subject would describe in simple terms the buildings they have seen and the impressions derived from them, a mass of information would be accumulated of a very useful character. The following notes are a humble attempt to contribute in some slight degree to so desirable an end.

Architecture and building in France at the present time are in a decidedly prosperous condition. Several causes have combined to produce this state of things. The agricultural, commercial, and manufacturing classes are, for the most part, fully employed. Capital is abundant and money cheap. The reaction from the general paralysis caused by the revolution of 1848 is infusing vigour into every department of industry. The French people expect much from the new dynasty of rulers: whether their expectations be realised or not, it must be admitted that the present government, by public grants in some cases, by subsidiary contributions in others, and by exciting a spirit of emulation in every locality, has done much to stimulate the spirit of enterprise in undertaking and carrying forward great public works in every part of the country.

In no department of architecture is improvement more visible than in the attention now paid to the preservation and restoration of the magnificent mediæval structures with which France abounds. In this respect a wonderful change for the better has passed over the public feeling of France. For a long period previous to the first revolution a spirit of carelessness and neglect had been indulged, which had allowed much devastation and ruin to be perpetrated, to which the reckless and blind fury of the revolutionists merely put the finishing stroke. Much destruction was then perpetrated which no exertion can ever repair. Many noble structures were levelled with the ground, and many others were diverted from their sacred uses and degraded to the basest purposes. The feebleness of the Gallican church for a long period prevented any efficient attempts to remedy this state of things. Public opinion was indifferent or hostile to any movement in this direction. Of late years, and more especially since the late rapid changes in the government, a signal revolution has manifested itself in the public mind in reference to this subject. A strong and decided feeling in favour of mediæval architecture has begun to prevail. This has been greatly encouraged by the establishment of antiquarian societies in the various provinces, which pursue their researches with considerable zeal and earnestness.

The growing influence of the church and priesthood, thus encouraged by public feeling, and fostered by the assistance of government funds, has led to restorations of the most extensive character in most of the great ecclesiastical structures. Unsightly hovels and clusters of humble buildings, which had been allowed to nestle between the buttresses, and shroud the rich carvings of the churches, have been swept away. Tottering old houses, which had obscured the view of noble façades have been ruthlessly levelled with the ground. Crumbling and shattered masonry has been removed and replaced. The splendid ranges of statuary and tabernacle work, which the iconoclasts of the revolution had battered and mutilated, now shine forth in many cases with more than their original splendour and richness.

Two circumstances existing in France have materially contributed to increase the facilities for this work of renovation. One is, the abundance of excellent building-stone easily accessible in every department north of the Loire. This material, sometimes gypseous and sometimes calcareous in its composition, is beautiful in colour, readily worked, applicable to the most delicate tracery and mouldings, and for the most part durable when exposed to the weather. The other circumstance is, the existence of a numerous class of operatives, above the common stone-cutter, and yet not aspiring to the rank of artist; men very capable of executing the minutest details of Gothic sculpture and tracery, with characteristic spirit and boldness, and at a price which keeps the outlay within moderate bounds.

Many of the buildings where the restorations are in progress will be brought under our notice as we proceed.

It is a remarkable fact, account for it how we may, that the attention which has recently been paid in France to the mediæval remains, has not hitherto led to the revival of Gothic architecture to any appreciable extent in modern buildings. A few specimens undoubtedly exist, but they are exceedingly meagre both in design and in detail. The spirit which seems quite capable of entering into the feelings of ancient art when working under the visible shadow of its influence, appears entirely to evaporate when devoted to original composition. The modern French churches are essentially Italian in their conception and treatment. The larger ones are modelled on the form of the basilica, with clerestory, side aisles, and frequently with transepts and apsidal eastern ends.

A very good specimen of the modern French church is to be found in that of Notre Dame de Lorette at Paris, situated in the Rue St. Lazare, beyond the Northern Boulevards. It is large and commodious; rather plain externally, but highly ornamented in the interior. Its plan forms a Latin cross, forming three aisles with side chapels outside, and apsidal eastern end.* The southern front has a bold tetrastyle Corinthian portico.

The organ gallery is carried by a stone screen with columns, the centre part underneath forming an inner vestibule with baptisteries on each side. The church is a basilica in section, the clerestory carried on Ionic columns supporting a straight entablature. The ceilings are flat, divided into panels with considerable ornament and gilding. At the intersection of the cross a square tower is carried up with an entablature and attic, which is crowned by a bell turret, square on plan, with arched openings on each of its four sides.

The interior of this church is highly decorated with paintings in oil by the most celebrated artists of the modern French school. These cover the walls of the clerestory and side chapels and the pendentives and spandrils of the vaults at the intersection.

The architect of this church was M. Le Bas, whose plans were adopted after a public competition. It was commenced in 1823, and completed in 1836. The total cost was 1,800,000 francs, or 71,400*l.* for the building, and 400,000 francs, or 15,866*l.* 13s. 4d. for the paintings and decoration—in the whole 87,266*l.* When it is remembered that this is only a parish church having a district of moderate extent around it, it must be acknowledged that whatever the artistical result may be, public religious edifices in France present a wider scope for the display of the mental resources of the architect than the corresponding class of buildings in England.

In the present case the building exhibits several bold and original features. In plan it is well studied and arranged, and several very striking effects are produced by the large number of internal columns when seen in combination with the vaulted recesses and intersections. The mural paintings, belonging as they do to the architecture of the buildings, impart a vivid completeness and finish to the interior, which is not often met with in this country.

The design, however, is far from faultless. The straight entablature supporting the clerestory, the square-headed clerestory windows, and the flat ceilings divided into square panels, impart a rigidity and stiffness to the internal lines, which is scarcely removed even by the profusion of pictorial decoration. The outside is every way inferior to the inside of the building. The southern portico, as tetrastyle porticoes usually do, looks narrow and squeezed up. The centre tower is bald and meagre, and the remainder of the exterior consists of little more than plain walls crowned by a cornice and attic.

There is another church of equal size and superior external architecture now nearly completed near the Great Northern Railway terminus in the Place Roubaix.

The cost of these ecclesiastical buildings is not defrayed, as it is frequently supposed, out of the general taxation of the country. The Parisian churches draw their funds from rather a singular source. In Paris the furnishing of funerals is not left to private enterprise, as with us: one undertaker contracts under Government sanction for the whole city on a fixed scale of charges. Out of the profits thus acquired a certain per centage is allowed, which forms the sustentation fund of the churches. There are some other sources of income, but this forms the principal. To our habits this may appear a little repulsive; but it must be admitted that if taxed at all it is better to make the tax, like this, subservient to architecture, rather than, like our late odious window-tax, directly inimical and destructive to it.

Public improvements are at present occupying much attention at Paris. The new street, continuing the Rue de Rivoli up to the Hotel de Ville, has caused the destruction of several hundred houses in the most crowded and squalid portion of the city. Its new alignment is being set out, and will give abundant scope for the skill of our French brethren in the art. The cost of the buildings and interests requiring compensation in order to form this street, has amounted, according to the French papers, to the sum of 25,000,000 francs, nearly a million sterling, the whole of which is defrayed by the municipality. The completion of the northern side of the great quadrangle of the Louvre seems likely soon to be accomplished, the buildings which stood in the way having been removed, and the plans, it is said, approved. The rapidly accumulating treasures of the Louvre Gallery and Museum demand an extension of space. There are difficulties in the way of the design, arising from the circumstance of the axis of the buildings of the Louvre and the Tuileries not being in a right line; but there is no doubt this may be successfully got over. When completed, they will be, of their kind, the noblest group of buildings in the world, both artistically and historically considered.

The restoration of the *Sainte Chapelle* still continues, though very slowly. The interior is nearly completed, but wants the tiled floor and some of the glazing. As a specimen of rich thirteenth century architecture, this little building is probably unrivalled. Its polychromatic decorations are for the most part in good taste and keeping with the architecture, though ex-

* Read before the Liverpool Architectural and Archæological Society, December 29, 1852.

* This church, like many others in France, stands north and south; our continental neighbours not being nearly so pedantic in regard to orientation as the Protestant Church of England.

ception might be taken to the star-spangled vaulted ceiling. The exterior is being gradually restored, though some time must yet elapse before it is completed.

The *Conservatoire des Arts et des Métiers*, in the Rue St. Denis, is being rebuilt and greatly enlarged. This institution, which is supported by the Government, and thrown open gratuitously, contains working models of the most improved machinery in every department of industry. Every new patent is here displayed, and every new invention exposed to the inquiring. Such an institution is much wanted amongst us, and it is to be hoped that in the new buildings to be erected at Kensington ample provision will be made for this purpose.

Time will not permit, however disposed I might be, to indulge in any critique on Parisian buildings in general. There is a wide field open in this direction for any competent architectural writer to enter upon, and I know of no greater service which could be rendered to the rising students of our art in this country than to familiarize them with the excellences, and point out the defects of the principal buildings in Paris. There are also many buildings of a class not so striking, from which valuable hints may be taken. Here, for instance, is a Protestant place of worship, in the Rue Chauchat, not of very large dimensions, of which the construction is bold and original. It was built in the year 1827, for a customs depôt, and converted into a church in 1843. In plan it is a parallelogram, with a single span roof. At intervals of about 16 feet, bold projections, resembling buttresses, are carried transversely inwards and outwards from the walls. From these semicircular arches are thrown across the building, which support the purlins and framing of the roof. The extension of the buttresses outside serves to counteract the thrust of the arches. Between the buttresses internally, side galleries are carried, and externally the spaces form corridors and apartments. The arches and buttresses thus forming the frame of the building, the curtain walls are only required to be comparatively slender. The construction and design, whether or not a pattern for imitation, are striking and effective.

Leaving Paris, we will now extend our view to the provinces. I propose simply to record the impressions made on my mind respecting the architecture and progress of building in a few of the towns in the centre and south-west of France during a recent visit. The first town to which I would call attention is the city of *Tours*. Situated on the south bank of the river Loire, in the midst of a fertile country, it has maintained a high position as a place of importance in every age of the history of France. Its present appearance is that of a respectable provincial town, with rather more of refinement and architectural pretence than is usually met with in places of equal magnitude. Its ancient walls are levelled with the ground, and the ramparts or boulevards converted into pleasant walks planted with trees. The Loire is here crossed by a handsome bridge of fifteen arches, from which the Rue Royale, a noble modern street, intersects the town from north to south, and is continued far away into the country by a road straight as an arrow, with a stately avenue of trees on either side. The buildings fronting the Rue Royale are lofty and handsome, faced with white stone, reminding the spectator of the best parts of the new town of Edinburgh. The portion of the town to the east of this street contains the aristocratical quarter. Many of the houses are very recent in their erection, and display considerable taste in the doorways, cornices, and balconies. Columns and pilasters seem to be not much patronised. The body of the building generally consists of plain wall, trusting for effect to a bold ornamented doorway, a moderately ornamented cornice, and decorated window-dressings. The result is on the whole very pleasing, partly, no doubt, the effect of the beautiful cream-coloured stone with which all the buildings are constructed.

The ancient part of the town presents many features of much interest to the architectural antiquary. The cathedral and monastery of St. Martin, of Tours, so famous during the middle ages, has almost entirely disappeared. The only remains left consist of two lofty towers, at such a distance from each other that it is difficult at first sight to believe that they could ever have formed part of the same building.

The Cathedral of St. Martin, in the height of its splendour, was decorated with seven towers, —two to the west front, two each to the north and south transepts, and one at the intersection of the cross. The towers now remaining are the southern tower of the west front, and the west tower of the north transept. The architecture is that of the latter part of the eleventh century. They are lofty, and enormously strong in the construction. A wide street now extends along the site of the ancient nave.

The present cathedral is the church of St. Gatien, in the eastern quarter of the city. It is a large and noble pile of building, commenced in 1170, and continued during the succeeding centuries down to the time of the Renaissance. It is a remarkable fact, however, that through the whole period of the erection the same plan and general character have been preserved, with differences in the details as the style progressed. This is the case in many of the continental buildings, which gives to them an air of unity and completeness, certainly superior to the grotesque and somewhat jarring contrasts which so frequently present themselves in the several portions of our English cathedrals.

The west front is rich in general character, but not pure in style, having been erected during the latter part of the fifteenth century. The character of the façade in its deeply recessed portals, with their statuary and niches, its triangular canopies, its rose windows, is an imitation of the thirteenth century design, carried out with detail of a later date. The sculpture and ornament is of the most elegant design and delicate execution. Much of it has been recently restored in a masterly manner. The towers are crowned with octagonal turrets, covered by domes and cupolas perfectly Italian in their style. The interior is pleasing and effective, though not on the magnificent scale which renders some of the French cathedrals so imposing. It is 256 feet long, and 85 feet high to the apex of the vaulting,

The plan is the usual Latin cross. The choir has a multangular apse, the aisles continued round the east end, with projecting side chapels between the buttresses. The transepts have large rose windows at the north and south terminations. The clerestory is lofty, having large windows with flowing tracery. The triforium is peculiar, having double sheets of tracery, one placed about a yard behind the other, the outer being glazed. This gives a remarkably light effect to the interior. There is a large quantity of good stained glass in the large clerestory and triforia windows. The organ is placed in the south transept under the rose window. It is very large, and in the Florid Renaissance style, adapting itself to the curves of the window.

The archbishop's Palace is a large middle-age building flanked by round towers, with an Italian façade immediately adjoining the cathedral.

The church of St. Julien, near the Rue Royale, has been long secularized, but is now being completely renovated and restored to its sacred uses. It is a large cross church, with tower at the west end. The tower and west front are Early Romanesque, equivalent to our Early Norman. The columns are of classical proportions, with foliaged capitals, the arches square and plain. The label moulds are ornamented with foliage, the strings exhibit the triple billet mould. The body of the building is early thirteenth century work, with groined vaulting and lofty clerestory. There is a noble crypt adjoining, now converted into a stable, which has apparently formed one side of the ancient cloisters.

There are many interesting mediæval buildings in the more ancient streets. No. 35, in the Rue du Commerce is a fine old mansion in excellent preservation, set back in a spacious forecourt. It is apparently of the early or middle part of the sixteenth century, in what may be called the Italianized Gothic, contemporary with our Early Elizabethan, but very different in its style and details.

Not far from this is the Place aux Fruits. There is a modern house, evidently of recent erection, which struck me as exhibiting remarkably good taste. It is not very easy without drawings to convey an adequate impression of a building, but the following is the general arrangement. The ground-story presents a large *porte-cochère* in the centre, with large folding gates on each side opening to the *remise*, a coach-house and offices. The one-pair floor has two arched windows, with pilasters and archivolts, and a continuous iron balcony. The two-pair story has two square-headed windows, with dressings round, and separate iron balconies. Above this runs an enriched frieze, surmounted by a bold cornice broken round the pilasters. Above this cornice is an attic set back some feet from the front, the space being occupied by a light verandah, forming a promenade with flowers, vases, and creeping-plants trained and festooned.

We will next turn our attention to the city of *Poitiers*, sixty-three miles south of the Loire, the capital of the ancient county of Poitou, interesting to every Englishman as the scene of one of the greatest triumphs recorded in the English annals. It is a venerable and picturesque city, rich in memorials of the past of every age of architecture. The cathedral demands our first notice. The pointed architecture of the towns south of the Loire differs materially in its character from that of the north of France, and departs much more widely from the English model. The west front of the cathedral of Poitiers is flanked by two towers, unequal in size, but apparently of the same date. The faces are formed in the lower stage into panels by light single shafts and pointed arches. In the next stage there are similar long panels formed by clustered piers and arches more deeply recessed, and canopied by triangular crocketted labels. Above [illegible] the towers break into octagons, without spires, and are finished at the angles by octagonal turrets and spirets or finials. The centre part of the west front has three portals, with statuary and niches in the archivolts, and bas-reliefs in the tympana of the arches. These doors are deeply recessed and fine in character. Above these a large rose-window in the centre is in course of restoration. The whole *façade* is of early or middle thirteenth century, with the exception of the octagonal portion of the north tower, which is probably of later date.

The main body of the structure is attributed to our Henry II. who was Duke of Anjou and Poitiers in right of his wife. With this date the style of the architecture appears to agree. The interior is curious, differing materially from most buildings of its class. There are three aisles of nearly equal height, without clerestory or triforium: the height is probably 70 feet in the centre. The aisle windows are carried up nearly to the apex of the vaulting, the cills being about 30 feet above the floor. Underneath the windows is an arcade formed with single shafts and semicircular arches. The vaulting is singular. The pier ribs and cross ribs are brought down about 1 foot 6 inches, and each bay forms a sort of pointed dome, with small cross springers formed by a simple bead, except at the east end of the choir, where they resemble the arch ribs. The transepts are shallow and without aisles. The east end is square, being in this respect almost unique in France. There is no Lady chapel, but there is a semi-octagonal recess at the east end of each aisle, in which an altar is placed.

The piers have delicately-cut foliaged capitals.

The north door of north transept is good Norman, or Romanesque, with three orders of moldings, and well executed statuary capitals to the columns.

The window at the west end of north aisle is a beautiful specimen of Early Geometrical tracery in six lights.

On the whole the Cathedral of Poitiers possesses a certain air of grandeur, though much inferior to many of its sister structures. Its peculiarities are worthy of study.

The most ancient building in Poitiers is that called the Baptistery of St. John, now the Museum. It is of a style anterior to the introduction of the Lombardic architecture into France, its details being classical, though somewhat debased. The walls are built with squared stones in courses about 6 inches thick, with occasional layers of red Roman tiles. The cornice is of Corinthian character, with

enriched modillions and a low-pitched pediment, the bed-mould carried across horizontally in the Roman mode. The interior is about 45 feet by 25 feet, with an octagonal recess on one side, and an addition of later date at the other side. The walls have paintings of Early Byzantine character. The octagonal apsis has an arcade with semicircular arches and capitals of Corinthian foliage. This very interesting relic was recently marked for destruction, and was only with difficulty saved by the intercession of the Society of Antiquaries of the west of France.

The church of Notre Dame de Poitiers has a most rich and curious west front of Early Romanesque or Norman. In general character it is not unlike the front of Castle Rising Church, Norfolk, but more extensive and rich. The front is flanked by two octagonal buttresses there, and the entire surface is covered with ranges of semicircular arched panels, strings, and corbels, enriched in the most profuse manner by grotesque sculpture in Runic knots, corbel tables, beak heads, and every variety of Romanesque enrichment. The buttresses are expanded into round turrets above the roof, and crowned with low cones or spirets covered with a scale ornament. The centre portion of the gable is kneed, and raised in the middle, to give height for a recess of vesica shape, filled in with sculpture.

The whole front is in an excellent state of preservation, apparently not the slightest alteration having been made since its erection. One circumstance is a little remarkable. The style of the whole is rude, and yet evidently the best of its kind, no pains having been spared upon it. This would mark the date of erection not later than the latter part of the eleventh century, with which the style corresponds; yet, with every other portion of the arched work semicircular, two of the recesses on the lower tier have the arches slightly pointed, evidently of the original work. We must either conclude that the rude style of execution continued longer in France than in England, which it seems hard to believe, or that the pointed arch arose earlier in France than in England, which I feel strongly inclined to think is the case. The interior consists of three aisles separated by piers into nine bays in the nave, beyond which the chancel forms an elongated semicircle with round apsis, the aisles continuing round, with projecting side chapels between the outer piers. The piers of chancel are round. The centre aisles of both nave and chancel are covered with barrel vaulting with a square cross rib at each pier. The side aisles have plain semicircular groining without ribs. There is no clerestory.

The floor of the chancel is raised about a yard above the aisles. There is a little introduction of later work in the groining of the side chapels and part of the piers of the south aisle of chancel, but the general arrangement is preserved, and the whole church is a very curious specimen of the period.

The nave and aisles have lately been painted in distemper in the Byzantine style, with stencilled patterns of all kinds covering the whole surface, brown and blue predominating. The effect is too showy, and yet, from the nature of the colours, by no means brilliant.

Externally, the windows are plain single lights, with semicircular heads set in arched recesses between flat buttresses.

There is a centre tower of the original construction, which is very curious. It consists of three stages, the two first square on plan, but set back at the string; the second story broached up to the upper stage, which is circular, covered with a round cone or spire. On the south side there is a small attached stair turret, covered with a similar cone.

The classification and nomenclature of Gothic architecture current in England are extremely perplexing when applied to French buildings. The terms, Norman, Early English, &c. when applied to English buildings, are intelligible enough; but it is to be regretted that a more comprehensive survey of the mediæval architecture of the continent was not taken before a definite classification was adopted. To apply the term "Norman" to the architecture of the south-west of France, where the Normans never were settled, and from whence they themselves derived their style, is about as applicable as it would be to term Grecian architecture Roman, because we first derived our knowledge of its principles through Italy. Hope and others have given to this style the name of Lombardic, as the most characteristic specimens are found in Lombardy; but perhaps the term Romanesque expresses its debased character, and its relation to the classical period, better than any other. As to the pointed style on the continent, in the confusion which exists, it would seem that no better classification can be adopted than that of the century in which the structures were erected.

Time and space would fail in the attempt at a detailed description of the numerous mediæval remains with which Poitiers abounds.

The church of St. Porchaire is Early Romanesque, with a square western tower in four stages, and a fine west door.

The hall in the Palais de Justice has an open timber roof of rather rude character and a blank arcade round the walls. One end forms a vast window of the fifteenth century character, with open turrets containing staircases at each side. Below the window is a broad band with angels holding shields, and several enriched bands of foliage. This apartment is stated to be the great hall of the ancient palace.

The church of St. Radegonde has a choir with semicircular apsis and aisles continued round, apparently of the eleventh century. This is of small dimensions. The nave, which is of later date, and identical in style with the cathedral, is in one broad aisle, which spans nearly the entire width of the choir and its aisles. Under the choir, the centre aisle of which is raised considerably above the nave, is a small, very ancient crypt, which contains the tomb of the saint in black marble. The choir and its aisles have been painted in a similar style to Notre Dame. The west tower is Early Romanesque, square below, and octagonal above, with attached stair-turret. The spires are now slated.

The church of St. Hilaire is Romanesque in style, but with much of the Byzantine in its character, with barrel-vaulting semicircular recesses covered with semi-domes, the bays in the nave covered by domes. This church is a mere fragment of the original building, a great portion of which was destroyed at the revolution.

There is not much modern architecture in Poitiers to remark upon. I observed in front of a new house not far from the Musée, a centre window with an enriched frieze consisting of a bust in high relief, with scrolls of vine-leaves, grapes, and tendrils of graceful design and beautiful workmanship.

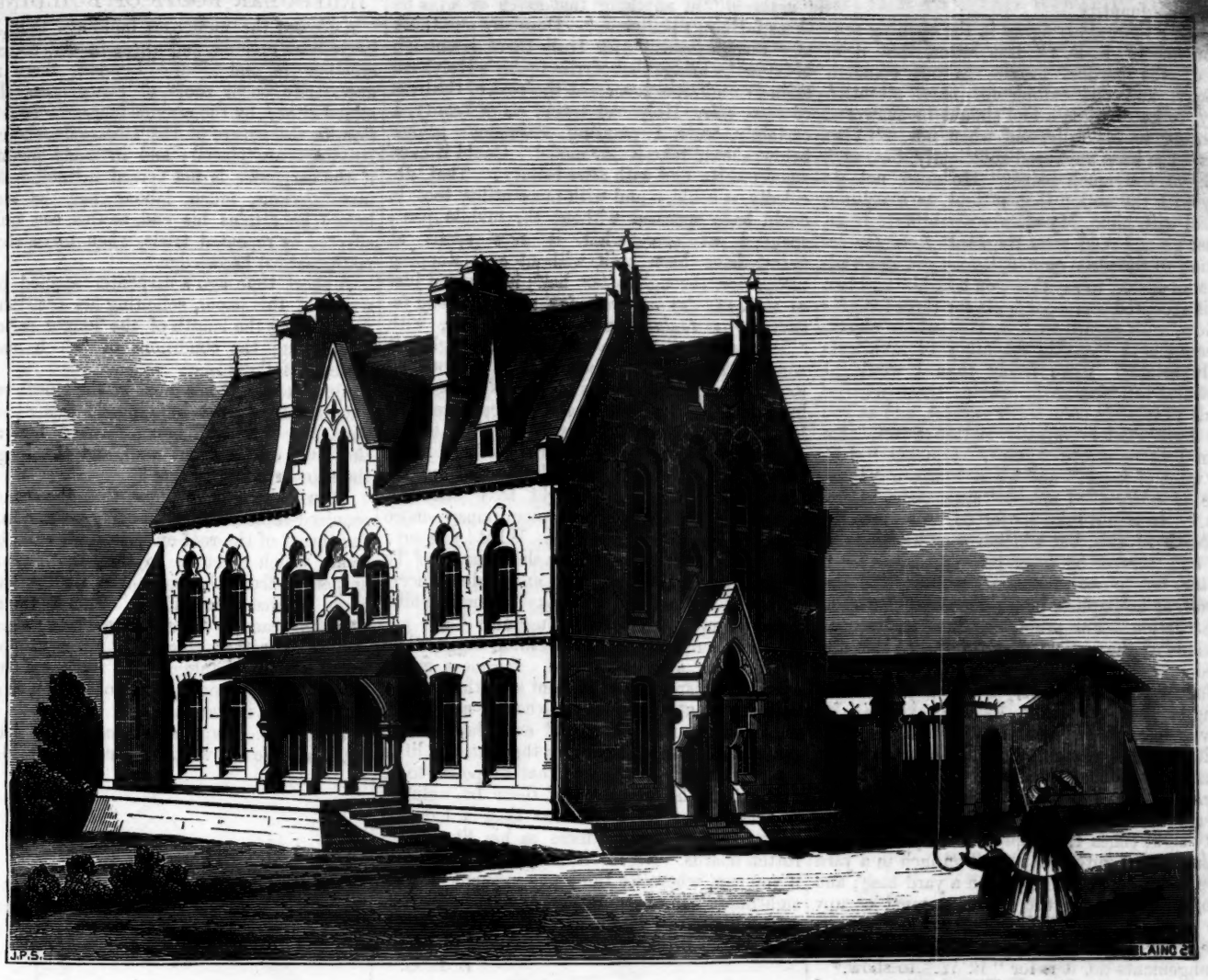
In the Grande Rue, facing the Place d'Armes, there is a noble doorway, apparently of the seventeenth century, the aperture about 15 feet by 8 feet, with coupled Corinthian columns on each side, and entablature. The architrave is formed with a rich band of foliage. The building to which this is attached is now a warehouse. The buildings in Poitiers are for the most part of stone, timber framing being rare.*

J. A. PICTON.

* To be continued.

ROYAL ACADEMY.—LECTURES ON ARCHITECTURE.

PROFESSOR COCKERELL delivered the first lecture of this course on Wednesday evening, Jan. 5. He commenced by observing that the return of this period of the session was alike pleasing to the professor and to the students, from the satisfaction felt by the former in imparting his hard-earned experience, and the interest felt by the latter in listening to the dicta of a veteran, who, by the happy constitution of the academy, was not only an artist, but a practical architect. Quoting from Vitruvius and other ancient writers, their opinions on the importance of the union of theory with practice, the lecturer dwelt upon the necessity of laws, rules, and logical reasoning, in the study of architecture. He explained that the object of the Royal Academy lectures was to enforce the natural principles involved in the pursuit; to indicate the merits of the great authors who had treated of the theory of the art (and whose works the student was bound to possess as his stock-in-trade); and, lastly, so to exemplify that theory by reference to the varied beauties of different styles, as to supply the ways and means of acquiring a competent knowledge of each. The value of such lectures was, therefore, very great, especially as tending to encourage habits of just criticism and sound reasoning, and thereby to enlarge the mind. In the enunciation of principles which were always constant there must, of course, on repetition, be some want of novelty; but an academy should only be regarded as a depositary of knowledge, and as a field producing its annual and usual crop, improved by careful tillage, and not as a hot-bed of genius, or as calculated to produce those rare phenomena which Nature so charily displayed. If its natural action could be kept in healthful order, no more should be expected from such an institution. Architecture was so exposed to the fluctuations of fashion and the delusions of imagination, that the grave conclusions of learned inquirers in past ages were of the utmost value; for the rash adoption of novelty in such an art might be deplored to the remotest posterity; and when such novelties, ending in failure, were perpetrated in the durability of stone, they became a real misfortune to the country which possessed them. The works of Borromini especially, and in a scarcely less degree, of Batty Langley and of Horace Walpole, were striking illustrations of this evil. Great, on the other hand, were the value and importance of fine national monuments, in which the principles and theory of antiquity were duly recognised, and unhappy the country which could not point with triumph to such edifices as St. Paul's and Westminster Abbey. What would Egypt or Athens be without their architectural remains,—which, indeed, formed plainer evidences of the history of these countries than the writings of Herodotus and Thucydides, and which, after a lapse of 2,000 years, were still the chief delight of the student and the traveller? With these impressions of the importance of architecture, and of the heavy charge resting upon himself, as having been selected to give full expression to it, he proceeded to consider in what manner the student could best pursue the subject, and to what sources of instruction he could appeal. In the course of this inquiry he dwelt upon the necessity of ascertaining, in the first place, whether a true feeling and inclination for the art existed in the mind; for if a real pleasure in any art or science was manifested in early life, success might be considered certain with the aid of zeal and industry. If, however, such a decided taste for art did not exist, the youth should at once embrace some of the many other callings which were as useful and as honourable as that of the artist. The early inclination of Thucydides for history, and of Vitruvius and Palladio for architecture, might be referred to as instances of this truth. A liberal education was, of course, an essential preliminary to the study of architecture; and above all, the student should possess a sincere and ardent love of the beauties of nature. No department of the natural kingdom,—animal or vegetable,—from the infusoria and mollusca, to the carnivora; and from the dog-rose to the banyan-tree, was destitute of beauty, and many natural objects supplied the type of valuable architectural members. Thus, the strength of the straw had led to the use of the hollow column, whilst the admirable adaptation of the limpet-shell to its exposed situation on the sea-shore, had led to the successful application of a similar principle to the sheathing of ships with metal. The power of resistance in the egg-shell, which, although so fragile in one direction, sustained the vibration of transit with so little liability to damage, was another striking illustration of natural science. Eggs were brought from Scotland in boxes containing 1,400 each, and no greater allowance than thirty or forty per case was made for breakage; and the egg-shell presented the architect with a type of the dome and the vault. Beauty of form especially abounded in the works of nature, and to the fortunate recognition of a mere natural principle (though it might be dignified with the name of a discovery) the architect might be indebted for the acquisition of fame and affluence. Nature, indeed, should be studied above all other masters; but, next to Nature, the great authors whose works had received the sanction and approval of bygone ages, were to be carefully



SOUTHERNDOWN HOTEL, GLARMORGANSHIRE.—Mr. J. P. Seddon, Architect.

studied; for in the practice of this art invention should be restrained to the new and logical combination of old and long recognised elements.

With these introductory remarks, Professor Cockerell proceeded to point out especially the merits of Vitruvius, describing his position, the history of his work and its various commentators, and the contents of the different chapters of the work, upon the extreme value of which he particularly enlarged. The great work of Alberti was described by the lecturer in a similar manner, and a notice of other authors was deferred till the next lecture.

HOTEL AT SOUTHERNDOWN, GLAMORGANSHIRE.

Annexed is the view of a hotel which is now in course of erection and nearly completed at Southerndown, near Bridgend, in Glamorganshire, from the designs and under the superintendence of Mr. John P. Seddon, architect, of London. It is intended to supply the want of proper accommodation which has long been felt by the visitors who during the summer months have been in the habit of frequenting this watering-place of South Wales. Southerndown occupies a commanding position on the coast, about halfway between Cardiff and Swansea, and near to the mouth of the river Ogmore. The elevation of the land is considerable, and the cliffs, of limestone formation, rise abruptly to a great height; but at this point they decline on either side towards a pleasantly wooded ravine leading to a capacious bay, which, at the tide-ebb, affords a fine extent of sands. On the one side of this is the park in which stands Dunraven Castle, the residence of the Dowager Countess of Dunraven; and on the opposite height is the village of Southerndown; the site of the hotel being nearly at the summit.

The materials with which it is erected are the limestone quarried on the spot, and the lime burnt from the same; but as this stone is of so hard a nature as to render it exceedingly difficult to be worked, for such freestone as is positively required the Bath stone from Coombe Down has been used. All the weathered sills, blockings, quoins, and arches, however, are executed in the local stone hammer-dressed, the arrises only being worked sharp and true with the chisel: the remainder of the face is of random work. The depth of the reveal to the windows is 14 inches externally, 7½ inches being given to either of the arched recesses seen in the drawing. The projecting wall at the farther end of the raised terrace is for the purpose of protecting the front somewhat from the wind, which is violent at some seasons. The whole structure is a quadrangle on plan, of which the side not seen in the drawing is two stories in height, and the hotel is arranged so that the portion to be let privately is perfectly independent and separate from that wherein its ordinary business is carried on. The builder is Mr. J. Brown, of Stoke's Croft, Bristol, whose original tender was 1,298*l.* and for the addition of the verandah, and an extra story to the back buildings, 124*l.*

The Ordnance Survey of the West of Scotland.—At a recent meeting of the Glasgow town council, it was resolved to present a memorial to the Board of Ordnance, recommending the adoption of the six-inch scale in that district as elsewhere in Scotland, and throughout Ireland. The Philosophical Society of Glasgow have memorialised the Treasury to the same effect in reference to the counties of Lanark, Renfrew, and Ayr.

VENTILATION-CEILINGS.

As this matter of harmful or harmless construction stands apart from all questions of taste, and affects infinitely more than the credit of this or that fashion, this or that period for historical-romance-building, or this or that man, allow me to add that I hold it a duty to answer all objections that may fall in my way, whether they seem to me worth answering or not.

"J. E. D.'s" complaints, then, seem to be two,—1st, That my readers are left liable to the impression that I regard ventilation as "humbug." In answer, I can only refer to the third paragraph of my last letter (p. 785, vol. x.), to the last but one of my previous letter ("Sanitary Architecture"), suggested by his first remarks, and to the whole tone of what you first did me the honour to use, which originated this discussion.

2ndly. He seems afraid that by telling people the true proportion of carbonic acid in their breath, I shall lead them to think its "quantity utterly insignificant,"—in short, to find out *how little* it is that poisons and might kill them. To which I reply, that this is precisely what I *intended* them to see. Does he prefer that they should think it takes twice as much to hurt them as it really does? Or that by overrating its quantity, and so *falsely* rating the specific gravity of breath, they should make false and *ineffectual* provisions to let it out, instead of *effectual* ones? If chemists could measure us the true per-centages of those other poisons, infinitely worse than the carbonic acid, which give us *all* our phthisis, scrofula, consumption, and tubercular disease (for "*unless foul air be respired,*" says Dr. McCormac, "*there can be no consumption, no scrofula,*"—I quote the exact words of his paper, published by the British Association), "J. E. D." would

be still more scandalised at their "utterly insignificant quantity."

Next, I thoroughly agree in the opening sentiment of "J. E. D.'s" last letter, that it is one of the hardest puzzles in our common strategy, and one calling for most attentive study, to know when a fool should be answered according to his folly, and when not. "Vice Cotis" has been answered sufficiently, but, as I think, at too much pains. He must not go away with the notion that it took us a column to deal with him. My answer would have been, "Just go and read your Regnault *from the beginning* to the place quoted, before you again address an editor, to say that you take him and two of his accepted correspondents for three fools."

Now, with regard to "B. W." whose object, it seems, is to "enable the fancy of architects to luxuriate" more freely than I would, I must first tell him, as he quotes these *ironical* words of mine in such sober earnest, and as you *may* have readers equally matter-of-fact, that when I there wrote "fancy," I meant "sloth and want of fancy," and when I wrote "luxuriate *ad libitum*," I meant "stagnate as at present." It would take me far to enter into the *rationale* of this, but whichever or whatever be the end served by level ceiling-masks (for it matters not to our present argument), this end *cannot*, as he implies, be attained with harmless construction. For proof, see first and second columns of the article that originated this discussion.

2nd. "Paxton-gutters," I suppose, are something to drain off water, by its gravity, *i.e.* its gravity in air. We want to drain off light air by its *levity* in common air. If the gutters be of any use to us, then, they can only be so *inverted*. But I have proved in the place above referred to, that drains for this purpose must have forty-eight times the slope necessary for water-drains; *i.e.* if gutters must fall an inch in a yard base, these must rise 4 feet on a yard base; and also, that they and the openings must occupy the *whole* ceiling. What resemblance, therefore, they can bear to gutters, more than my arrangements do, it is for "B. W." to show.*

3rd. Fresh-air inlets. Why we do not need special provision for them in domestic buildings, and why "air-fountains" will not do, he will find in the article above referred to, but more explicitly in my first letter ("Sanitary Architecture"), and still more so in the appendix to the work referred to therein.

4th. The absence of ventilative provisions does not arise *at all* from the cause "B. W." supposes. He thinks that Englishmen of the nineteenth century have such a care for beauty, such a keen sense of anything "unsightly," that they let this stand in the way even of health. Very well: then of course we let it weigh against things much *less* than health. Let us see. Does any one put it against gentility? Does any one appear without a beaver hat because it is ugly? Does any one forego, for its ugliness, anything in building or furniture (however inconvenient to boot) that counterfeits the appearance of something that has been a *wealth-mark?* Does that young lady in *Punch* see any ugliness in those "lovely Cochin China fowls" that "cost—oh!—ever so much?" Did any one complain of ugliness in the Hyde-park "palace," or the National Gallery when it was built, or anything else that addressed itself to its own day's public "want" for sham lordliness? Do we ever discern "ugliness" in any feature of our house (convenient or inconvenient) that may remind a stranger, for half the first glance, of my lord's mansion? No; but our children do, as soon as it has ceased to remind of it.

Take another case. Do we ever talk of "ugliness" in anything that saves or wins us three farthings per cent.? Does any one think of "unsightliness" (for truly there is enough of it) in the bridge that carries to-day's Holyhead train five minutes sooner, at the cost of the lives of *some other* Holyhead train? For beauty, I certainly, were I painting Mahomet's bridge below, should take it for model. Could it have answered its end with *more* beauty? That, decidedly, it could,—and with more utility too. It could have spanned without the middle pier; spanned at *once* what it now spans at *twice;* have been built without *once* stopping navigation through *either* half; have stood just *as strong to-day as yesterday*, and *as strong to-morrow as to-day;* and with all this, with a little less iron (but a little more thought), it would have needed no beautifying, no lions, no mouldings, and no after-cobbling. Nature would have owned it—as she does all honest things,—lent it—as she does all honest things—the assistance of her own beauty,—assimilated and made it a part of her own self; and men that remembered not its building might have called it beautiful even beside her mountains,—more beautiful because beside them. What! you say: could you,—"E. L. G."—have shown us *how?* To be sure I could, and so could any real engineer:—so will I whenever I think it worth while. Now observe,—"B. W."—"ugliness" did not interfere here to prevent something bigger than a ventilator and less useful. Ugliness might have been dispensed with (and something more besides),—but this would have cost,—not health, no,—nor yet iron (it would even have saved iron),—but cost a little more thought,—a little more engineer's work; and that happened to be dearer than the iron. So, if there be ugliness in this, it was no more seen than a lodging-house keeper sees ugliness in his St. Giles's rotten boards. No, my friend; find an instance, if you can, where we think one moment of "unsightliness" in anything that enables us to make a farthing out of (I am sorry to use unsightly words—out of) another Englishman's blood.

E. L. G.

* The hoop-ties for the "sanitary and fire-proof floor-ceiling" I proposed, would be better and more cheaply made, without welding, and in a wholesale way, by punching them out of sheet-iron, in *nests* of several sizes; and the attachment, both to each other and to the walls, may be effected without either smith's work or the expense of screw-bolts, by the following means:—The three-armed piece before described is to have its arms turned up and half-rounded, which may be done both at once, between a hammer and anvil formed for the purpose; and the notches on the outsides of the arms may be made after the first punching out, in the flat. This coupling-piece being passed up through the adjacent corners of the three triangles, a ring is to be dropped on it, pressing the three arms together till they spread again by admitting it into these notches; and a cylinder of wood driven in from above will keep them pressed out against the ring, and afford a base for the feet of the ceiling tiles. The attachment to the walls can be made by straps, doubled in the middle, passing through the wall, and through a metal band applied on its exterior (decoratively cut or punched), and then secured outside thereof by keys, driven so as to strain the net to any required tightness. Screwed ends and nuts would of course be more elegant and compact.

INTERIOR OF ST. GEORGE'S HALL, LIVERPOOL.

THE interior of St. George's Hall is at present crowded with a forest of scaffolding. It is intended to line the side walls as high as the galleries, including the balustrades, with a polished rose granite dado (which is now fixed), and above with polished marbles in colours. The balustrades will probably be of black marble. The six pairs of doors opening into the hall have just been ordered. They will be in bronze, the panels open work with plate-glass introduced between the inner and outer tracery (if one may so call it). These doors will cost about 300*l.* a pair, or 1,800*l.* in all. They are being manufactured by Potter, of London, from Mr. Cockerell's designs. The ceiling of the hall has been entirely remodelled in the ornamental part since the Queen's visit. The large panels are being filled with the armorial bearings of the kingdom, the county palatine, and the principal towns—emblazoned in colours. The pendentives of the vaulting are to be enriched with large allegorical groups in low relief in plaster.

The floor is being executed in encaustic tiles by Minton, from a design by Gruner, and promises to be an elaborate affair. The centre of the hall will be sunk three steps below the gangway, which extends around.

Mr. Willis has sent down a considerable portion of the frame-work of the organ, with the bellows, wind-chests, and a portion of the pipes. The committee are about contracting for the case and platform, which will cost together about 3,000*l.* The bellows will be worked by a steam-engine, having two 8-inch oscillating cylinders turning a crank, but without a fly-wheel, that the power may be more under rapid control. This is probably the first application of steam power to the production of music on record, except the frightful railway whistle, suggestive of a train of thought of a very different nature.

The organ will be the largest in the world—some think too large.

DETERMINATION OF RAFTERS FOR IRREGULAR ROOFS OF BUILDINGS.

AMONGST the numerous buildings that have lately been erected, and those in the course of erection, in and around London, there must necessarily occur roofs of every form, determined either by the circumstances of construction, or the nature of the situations where the buildings are placed; and in many instances, if the carpenter is not versed in mathematical investigations, much labour may be wasted before he attains his end, as this can only be effected by repeated trials, when unassisted by mathematical knowledge.

A short time ago a carpenter applied to the writer of this paper, soliciting his assistance in determining the length of the longer rafter for a building, the conditions of which may be stated as follows:—

QUESTION.—What must be the length of the longer rafter for a building 24 feet 8½ inches wide, the back wall being raised 8 feet above the level of the front wall, and the length of the shorter rafter 14 feet?

It will here be evident, that the condition required to be satisfied in this question is, that the thrust of the roof on both walls shall be the same, which amounts to this, that a plummet suspended from the ridge-tree shall bisect the angle between the rafters. This is the condition that leads to the solution of the question, and it is rather singular, that a proposition apparently so simple, should require the reduction of an algebraic equation of the fourth order, involving all its terms.

SOLUTION.—Suppose it done, and let AB, fig. 1, denote the width of the building, BF the

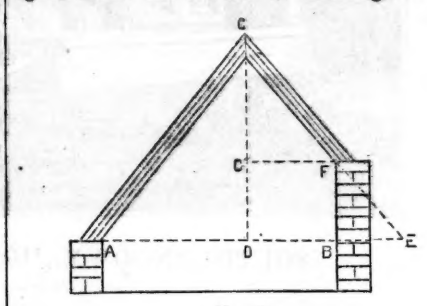


FIG. 1.

elevation or rise of the back wall above the level of the front one; FC the shorter rafter, and AC the longer one required to be determined. Then, by adopting a proper notation, the length of the required rafter will be represented by an algebraic equation of the fourth order, in terms of half the angle contained between the rafters; and consequently, by reducing that equation we shall obtain the value of half the angle itself, and from it the length of the rafter sought.

Put AB = 24·71 feet = w, the width of the building; BF = 8 feet = h, the extra height of the back wall; FC = 14 feet = l, the length of the shorter rafter given, and the angle FCG = ϕ required to be found, so that the angle ACF may be bisected by the perpendicular CD; or in other words, that the thrust may be the same on both walls.

Extend the shorter rafter CF to meet the width of the building produced in the point E, and draw FG parallel to AB; then are the triangles CGF, and FBE similar to each other; therefore, by plane trigonometry, we have the following analogies.

Sin. ang. CGF : FC :: sin. ang. GCF : GF; that is,

$$\text{rad.} : l :: \sin.\ \phi : \frac{l \sin.\ \phi}{\text{rad.}}.$$

Sin. ang. BEF : BF :: sin. ang. BFE : BE; that is,

$$\cos.\ \phi : h :: \sin.\ \phi : \frac{h \sin.\ \phi}{\cos.\ \phi}.$$

Then, by assuming the radius equal to unity, and adding these two quantities together, we get DE = GF + BE; or, in terms of the notation, it is $DE = l \sin.\ \phi + \frac{h \sin.\ \phi}{\cos.\ \phi}$; therefore, multiplying this by 2 and subtracting $\frac{h \sin.\ \phi}{\cos.\ \phi}$ from the product, we obtain an equivalent for the width of the building; hence it is

$$= w = 2 l \sin.\ \phi + \frac{h \sin.\ \phi}{\cos.\ \phi}$$

In this equation, however, there are two unknown quantities,—namely, sin. ϕ and cos. ϕ; it therefore becomes necessary to eliminate one of them in terms of the other, and this can easily be effected by means of the well-known principles of angular arithmetic; for cos. $\phi = \sqrt{1 - \text{sin.}^2\phi}$, which being substituted in the preceding value of w, the width of the building, we obtain

$$w = 2\,l \text{ sin. } \phi + \frac{h \text{ sin. } \phi}{\sqrt{1 - \text{sin.}^2\phi}}.$$

And by restoring the numerical values of the three given quantities, h, l, and w, the equation becomes

$$24{\cdot}71 = 28 \text{ sin. } \phi + \frac{8 \text{ sin. } \phi}{\sqrt{1 - \text{sin.}^2\phi}}.$$

Now, this is an equation of the fourth degree, which being reduced by the rules of algebra, gives nat. sin. $\phi = 0{\cdot}64279$, which being found in the table of natural sines, gives $\phi = 40°$ precisely, and this being doubled, gives 80° for the angle at the ridge between the rafters; the roof being just 10° below the true pitch: therefore, to find the length of the longer rafter, we have the following process:—

Angle BEF = 50°	log. cosec.	10·115746
Height BF = 8 feet	log.	0·903090
Length EF = 10·442 feet	log.	1·018836

To which add 14 feet, the length of the given rafter, and we get 10·442 + 14 = 24·442 feet, the length of the longer rafter, which was required to be found.

The foregoing question admits of another case, which, although not hinted at by the proposer, seems to be of greater utility in the practice of *roofing* than that which we have just resolved; and for this reason we think proper to consider it also, in order to render the solution of the question more complete and general than it would be by limiting it to the case already resolved. This case may be proposed in general terms, as follows:—

Given the width of a building, the length of the longer rafter, and the elevation of the wall on one side above that on the other side; to find the length of the shorter rafter, so that the thrust on both walls may be the same, or that a plummet suspended from the ridge-tree may bisect the angle between the rafters.

EXAMPLE.—Let the width of the building, and the excess of elevation of one wall above the other, be the same as in the previous question, and let the length of the longer rafter be 24·442 feet as formerly determined; what must be the length of the shorter rafter to satisfy the conditions of the question?

This case of the question admits of a very elegant geometrical construction; and for the purpose of rendering the several parts of the diagram perfectly legible, we shall enlarge it to double the former size, as by so doing the principles of solution will be more distinctly perceived, and more easily comprehended:—

Let AB fig. 2, be the width of the building, 24 feet 8½ in.; AF, the height of the back wall above the level of the front one, 8 feet, and

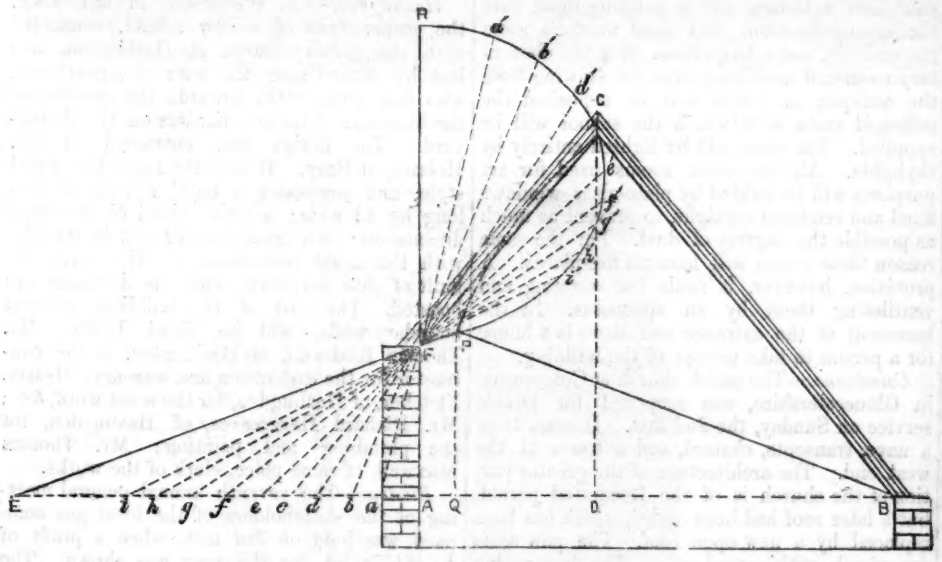


FIG. 2.

BP or BC, the length of the longer rafter, 24·442 feet; then, produce BA, the width of the building to E, or as far as necessary, and extend AF to R, so that AR may be equal to BP or BC, the longer rafter.

In the extension of BA, the width of the building, take any number of points, a, b, d, c, &c. and draw the dotted lines aa', bb', dd', cC, &c. making each of them equal to AR, the given rafter; then, through the several points R, a', b', d', C, &c. draw the curve line RCPF, and it will be a curve line of the fourth order.

Upon the point B as a centre, with the longer given rafter as a radius, describe the circular arc CP, intersecting the former curve in C and P; draw the straight lines BC, BP, FC, and FP; then will BC and BP represent the positions of the longer rafter, and FC, FP the positions and lengths of the shorter one. From the points at C and P, let fall the perpendiculars CD and PQ, and they will respectively bisect the angles BCF and BPF, which is the condition required to be fulfilled by the question.

Adopting the notation of the preceding case, (only here l denotes the longer rafter,) we have the following process for the equation by which the question is resolved:—

Sin. ang. EQP : EP :: sin. ang. EPQ : EQ; that is,

$$\text{rad.} : l :: \text{sin. } \phi : \frac{l \text{ sin. } \phi}{\text{rad.}}.$$

Sin. ang. AEF : AF :: sin. ang. AFE : AE; that is,

$$\text{cos. } \phi : h :: \text{sin. } \phi : \frac{h \text{ sin. } \phi}{\text{cos. } \phi}.$$

Then, twice EQ = EB, from which subtract AE, and there remains AB, the width of the building; hence we have—

$$2\,l \text{ sin. } \phi - \frac{h \text{ sin. } \phi}{\text{cos. } \phi} = w.$$

This equation determines the value of the angle BPQ or EPQ, and it will also determine the angle at the point C; therefore, by reducing the equation according to the rules of algebra, we get the natural sine of the angle BPQ, or nat. sin. $\phi = 0{\cdot}93637$, which being found in the table of natural sines, gives $\phi = 69°\ 6'$; and another root of the equation will give sin. $\phi = 0{\cdot}64279$, or $\phi = 40°$, half the angle at the point C, where the shorter rafter is 14 feet, as given in the first case.

To find the length of FP, the shortest value of the rafter, the operation is as follows:—

EQ : EA :: EP : EF; that is,

$$l \text{ sin. } \phi : \frac{h \text{ sin. } \phi}{\text{cos. } \phi} :: l : h \text{ sec. } \phi.$$

Therefore, by subtraction, it is FP = EP—EF; that is, $FP = l - h$ sec. ϕ, from which we get as follows:—

Value of $\phi = 69°\ 6'$	log. sec.	10·447651
Value of $h = 8$ feet	log.	0·903090
EF = 22·43 feet,	log.	1·350741
Whole length of the given rafter EP = 24·442		
Length of FP as required		2·017 ft.

T.

THE PAINTED WINDOW OF THE SUB DEANERY CHURCH, CHICHESTER.

YOUR journal, at p. 7, contains, in my opinion, some most erroneous comments upon this work, which emanate from a gentleman styling himself "An Antiquated Member of the University of Oxford." His main objection is, it appears, to the arrangement in common of subjects from both Testaments. Has this gentleman ever visited York Minster, or Fairford Church,—the Cathedral and Churches of St. Ouen, Maclou, Godard, Venient, Patnie, &c. at Rouen,—of Gouda, in Holland,—St. Jacques, Liege,—the Cathedrals of Bourges, Tours, &c.? If not, he ought to do so; for there may be found numerous instances, not only of subjects from various parts of Scripture capriciously mingled together, but frequently interspersed with legends of saints, and sometimes similar subjects. I remember, in the church of St. Godard, at Rouen, *King Dagobert granting the charter*, shown below the transom, and a *sacerdotal composition* above it. Everybody knows, who has glanced at the subject, that saints and prophets, accompanied with depictions of some great act or miracle of their lives, are commonly classed together, without reference to their corresponding in the age of their existence. Most of the churches I have named will show this, and the church of St. Saviour, at Bruges, includes both the ecclesiastical and lay peers of France. Bourges, Tours, &c. furnish innumerable instances of the irregular classification of Scripture subjects: in the latter, for example, is, in one window—the Building of Babel—the Martyrdom of St. Sebastian, and the Nativity of our Lord. Did space permit, instances might be multiplied.

This gentleman also objects to the Sons of the Prophets being smaller figures; but they do not appear the less to denote *sons:* being so, they certainly give a dignity to the figure of Elisha. This, in fact, is like all the subjects in the window—a *symbolic* configuration.

Has this gentleman, who says he has seen "the glass of this country and the European continent," to learn that all mediæval art, and glass especially, was *symbolical* of sacred facts, and not *representative* of them? Is he aware that no finite means can truly represent divine acts and revelations? That frequent as have been the attempts to accomplish this, it has as often failed? That even Raphael could only give a comparative development of *his imagination?* Has he to be taught that the *law of art in windows* during the middle ages, down to the sixteenth century, was to treat the several compartments which they contained as separate and complete in themselves, the *tout ensemble* being left to the colouring and detail? Is he aware that on *the very things he complains of in this window its chief merit rests*, because it is carried out upon these principles? I much doubt it; but if not, when he has given a well-directed study to this subject, it cannot fail to be evident to him.

Why has this gentleman omitted all mention of the Scripture texts, which, he *must have known*, would have fully explained the purpose of each subject? It could not be from any oversight of them, because he says he has "viewed the window at his leisure." *Clamant omnes indignissimè factum.*

Whilst examining the window I was fortunate enough to have its objects described to me, which assisted me much in its perusal. The Crucifixion, and the accompanying figures, occupy the three centre compartments: they are intended to bear reference to the Christian faith of the departed lady: the text beneath them is, "Behold thy Son: behold thy Mother." Above them (which this gentleman has thought convenient to say nothing about) is the figure of our Lord in Ascension, bearing the cross triumphant, denoting a hope of her attainment. Beneath the subject of "Elisha and the three Sons of the Prophet," the text is, "Knowest thou that the Lord will take away thy master from thy head to day?" which is meant to typify the maternal desolation which ensued. Under the subject of "Joseph closing the Eyes of Jacob," runs the following,—"Joseph shall put his hand upon thine eyes," which is in allusion to the fact of her son having performed this filial and melancholy act towards his mother.

Such is the window, which abounds in other beautiful detail.

Your correspondent says, "Dying scenes are surely more in keeping with deep and sombre colouring." Does he class painted glass with the paraphernalia of the undertaker,—and associate such memorials with our mourning habiliments, to be laid aside in a year? Surely it is desirable, in showing our respect and affection for the departed, to present cheerful works of art, calculated to induce reverence, and cultivate taste in those that follow.

His remarks upon the works in the cathedral are too indefinite to need any reply; but as he styles himself "An Amateur," and judging him by the standard of his theory, I tremble at his premature infliction upon the public of the window he says he is "*thinking about*," and would suggest to him to previously well study and attain the qualification to his own advice and motto,—"We shall presently learn that a poetical mind improved by a liberal education is essential to a good painter on glass."

I hope I have answered this gentleman's question as to whether "the *quidlibet audendi potestas*" (in this art) reaches to such combinations as he decries. "Poetry and painting," he truly says, "are twin sisters:" may he live to combine them with charity. APPREHENDO.

PROVINCIAL NEWS.

Chelmsford.—An ancient Roman foundation, composed principally of red brick tesselated pavement, has been discovered in Lord's Land nursery-ground, in this borough. Unfortunately some of the pavement was destroyed, but about 30 feet was preserved and carefully removed, and is intended to be presented to the Museum. Near the pavement several small Roman earthen vessels, and numerous fragments of larger ones, with amphoræ, were discovered.

Lincoln.—A commencement has been made here in clearing the ground for the erection of a new masonic hall in Grantham-street. It is said the high price asked for ground at the back of the building will lead to the bringing of this new structure forward close to the foot-pavement.

Oxford.—At the county sessions lately, it was stated that a plan had been submitted by Mr. Buckler for a new room for a committee-room, in extension of the south-western end of the hall, embracing at same time additional cells for prisoners awaiting trial, and increased accommodation in the basement for the public attending the assizes. The plan would involve an outlay of 1,000*l.*

Howden.—On Monday week a meeting of parishioners was convened in the vestry to consider estimates sent by Messrs. Weightman and Hadfield, architects, Sheffield, for the erection of a new roof over the nave of the parish church; and it was unanimously agreed that a new open roof should be erected according to the suggestion of the architects.

Baslow.—The church of Baslow was reopened on December 30th, having been restored in the Early English style of architecture from designs by Sir Joseph Paxton, the contractors being Mr. Watts, of Ashover; Mr. Savage, of Chesterfield; and Mr. Green, of Baslow. The principal alterations and additions are these:—A new chancel has been added, the unsightly plaster and inconvenient gallery have been removed, and the roof newly stained. The organ, improved by Mr. Foster, of Hull, has been transferred to the north-west aisle; and a stained-glass window has been put up in the chancel end. The church has been repewed throughout in the Gothic style, all the sittings being free, and a great number of additional ones put up. The chancel floor is paved by encaustic tiles, presented by Messrs. Minton and Co. A new vestry has been formed at the west end, and the bells improved. An entrance has been made into the belfry from the exterior of the tower. A warm-water apparatus has been erected; and pipes, obtained from Renishaw works, are laid throughout the church.

Macclesfield.—In excavating for an artificial lake at pleasure-grounds on the margin of Dane's Moss, the proprietor has discovered an ancient stone pavement, 5 feet from the surface, under peat or moss, upon a little gravel or fine sea sand. This pavement appears to be in good preservation, and evenly laid. The stones vary in size, and are similar in form to those common in our streets, but are of a white hard nature, and when broken are something like the spar stone of Derbyshire, but they are apparently of a different kind from any stone in the neighbourhood of Macclesfield. An extent of 50 feet is now uncovered, but the entire length and breadth are not at present known. A very large tree root has been found, with a small embankment around it, on which the pavement was laid. It is supposed that the pavement is of Roman origin.

Wolverhampton.—There is still, according to the local *Chronicle*, a considerable deficiency in the funds required for the erection of the proposed building for the school of practical art; but a fresh effort is shortly to be made by the committee. The design for the proposed building is now exhibited in the market-place. The style is Grecian and the order Corinthian. The principal façade is towards Darlington-street, and consists of a central recessed part with advanced wings. The entrance front is towards a new street leading from Darlington-street into Salop-street. The site which has been purchased for the purpose of this institution is on the south side of Darlington-street. The arrangements of the school will consist, on the ground floor of a committee-room and master's room on each side of the entrance; an elementary room, 43 feet by 26 feet; a modelling-room, 40 feet by 18 feet; and several closets. On the upper or one-pair floor a library and a painting-room over the committee-room and head master's room respectively, and a large room over the elementary room and modelling room for drawing from the antique, in which will be deposited the principal casts with which the school will be supplied. The room will be lighted entirely by skylights. All the other rooms used for art purposes will be lighted by plate-glass windows fixed and rendered air-tight, to prevent as much as possible the ingress of dust. For the same reason these rooms will have no fire-places. A provision, however, is made for warming and ventilating them by an apparatus. In the basement at the entrance end there is a house for a person to take charge of the building.

Colesborne.—The parish church at Colesborne, in Gloucestershire, was reopened for Divine service on Sunday, the 2nd inst. It consists of a nave, transepts, chancel, and a tower at the west end. The architecture of the greater portion of the church is of the Decorated period, but a later roof had been added, which has been replaced by a new open roof. The pew seats are of oak, with carved ends. The floor within the chancel is laid with Minton's encaustic tiles; and two stained-glass windows have been painted, one by Wailes and one by Willement: there is also a third window filled with the fragments of stained glass found in the old windows. Accommodation is provided for 200 persons, of which number nearly the whole are free. The restoration has been effected at the sole cost of Mr. J. H. Elwes, from designs by Mr. D. Brandon.

Liverpool.—The new Free Public Library is thronged daily by hundreds of well-conducted persons. In consequence of the number of magazines and other periodicals placed on the tables, of whose readers no account is taken, a small apparent decrease of the number from the first two or three weeks, which was 621 per day, has taken place, according to the local *Chronicle;* but the statistics up to Wednesday week (the 62nd day since opening) give a truly gratifying result, 32,995 books having been issued and returned in that period, which gives an average of 532 volumes per day, exclusive of the readers of the different periodicals.——St. Thomas's Schools are so filled, that a subscription has been opened for the erection of farther accommodation, at a cost of 1,500*l.*

Manchester.—The corporation have effected a loan of 350,000*l.* from the Bank of England, wherewith to pay the shareholders of the company from whom they bought the old waterworks. The corporation were paying at the rate of 5 per cent. for the money, but they effect a saving to the extent of 1 per cent. upon 200,000*l.* of the money borrowed, and 1½ per cent. upon the remaining 150,000*l.* The old waterworks' company had a meeting on Tuesday week, to consider what steps should be taken, the money having become due from the corporation, and that body having given notice that they were in a position to pay it on 1st instant. After some discussion, the corporation having absolute power to pay them off the money, the proceedings resulted in a series of resolutions to regulate the payment of the money, and to place the shareholders in a position to give the corporation a legal discharge upon its receipt. It was determined that the company should be formally dissolved on the 2nd May next.

Preston.—The baths and washhouses committee have issued a statement of accounts and report from the opening in May 1851, to 31st August last. The committee are "glad to find that the balance owing on revenue account (335*l.* 2s. 6d.) is not near so large as they had anticipated, a rate of about one halfpenny in the pound being all that will be required to clear off this debt." The statistics of the bathing department show that the operative classes, as originally intended, have been the chief recipients of the benefits of the establishment. After recommending several alterations, and throwing out some suggestions for more economical management, the committee conclude by expressing their belief that "the establishment will require little or no further assistance from the rates, but will prove as satisfactory in its financial results as it has hitherto been beneficial in its influence upon the health, habits, domestic comforts, and sanitary welfare of the population."

Haslingden.—On Wednesday in last week, the corner-stone of a new school, connected with the parish church at Haslingden, was laid by Mrs. Clegg, the wife of a gentleman who has given 800*l.* towards the erection of the building. The site borders on the churchyard. The design was entrusted to Mr. Holmes, of Bury. It is in the Early Decorated style, and comprises a boys' school, 56 feet long by 22 wide; a girls' school of the same dimensions; two lavatories, 12 feet by 9 each; with the usual conveniences. The walls are built of thin parpoints, and the dressings are boasted. The cost of the building, without boundary-walls, will be about 1,050*l.* Mr. Thomas Rothwell, of Haslingden, is the contractor for the excavation and masonry; Messrs. Fletcher, of Haslingden, for the wood-work, &c.; Mr. Richard Hargreaves, of Haslingden, for the plumbing and painting; Mr. Thomas Maxwell, of same place, clerk of the works.

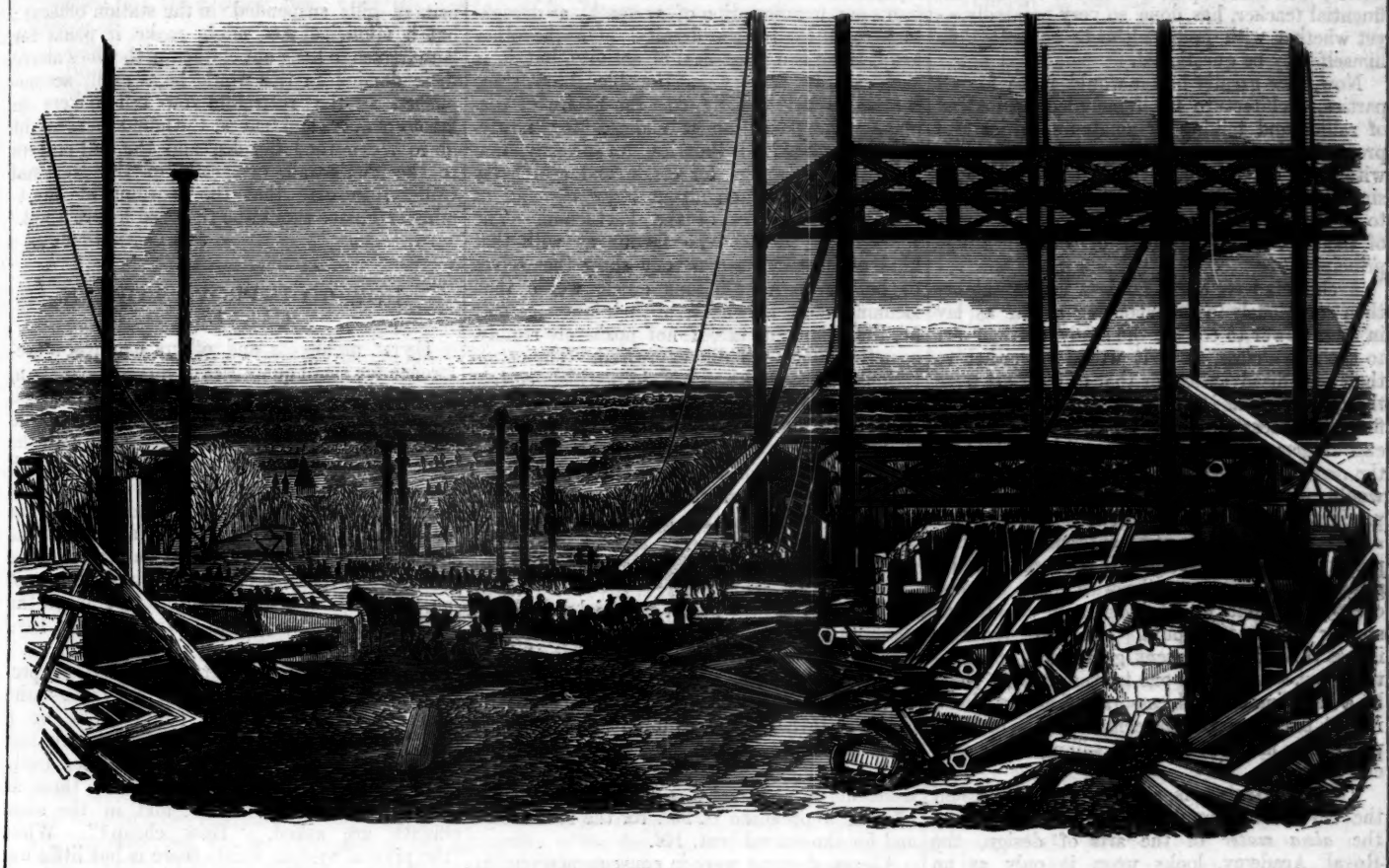
Bilston.—The seventh annual general meeting of the shareholders of the local gas company was held on 3rd inst. when a profit of 1,345*l.* 7s. 9d. for the year was shown. The report recommended a dividend to be made of 6s. 6d. per share (being rather more than seven per cent. on the paid up capital), which dividends would amount to 1,300*l.* and leave a surplus of 45*l.* 7s. 9d. to be added to the reserve fund, making the amount of that fund 181*l.* 5s.

Elgin.—The erection of the south free church has been contracted for at an expense of about 1,600*l.* The contracting tradesmen were Messrs. John Lamb for the mason, John Mackenzie for the carpenter, Joseph Stewart for the plasterer, and John Gordon for the plumber works. The building, designed by Messrs. A. and W. Reid, architects, is of the Gothic order. It is to front Guildry-street, at the south end, and will have a spire 120 feet high. The church is to be seated for 800.

Inverness.—The contracts for the completion of the bridge works have now been transferred for resumption from Messrs. Hutchins and Co. to another English firm, who have recently been engaged in large transactions connected with the Portland docks in Dorsetshire. Some Inverness tradesmen are, it is said, to be employed under them in several of the departments. It is now four years since the former bridge was swept away by a flood in the river.

BUILDINGS ACT AND SEWERS.—The vestries of St. Marylebone and St. James's Westminster have arranged to send deputations in concert to the Chief Commissioner of Works and Buildings with reference to the Metropolitan Buildings Act, and to the Home Secretary with reference to the Commission of Sewers.

THE CRYSTAL PALACE AT SYDENHAM.—SKETCHES AFTER THE STORM.*



[* See page 33, in present number.

ARCHITECTURE AND THE PUBLIC.

Although not particularly complimentary to the profession, the article entitled "Architects and Architecture," in the December number of *Fraser's Magazine*, deserves their serious consideration. At least they ought to make a point of knowing what opinions, affecting both themselves and their art, are now put forth from time to time, in literary and general periodicals, and which, therefore, though ignored by themselves, are likely to make some impression on the public. Times are now greatly altered; formerly, that is, no longer back than twenty-five or thirty years ago, architecture was scarcely ever touched upon in any way, whereas now it is handled very familiarly even by penny-a-liners. It surely, then, behoves the profession to open their eyes to this fact; to observe watchfully what sort of doctrine and criticism is promulgated among the public; and either to expose it if it be unsound, or else comply with its demands, and so profit by it. At the present day, opinions which find their way among the many are not to be put down by merely *pooh-poohing* them. Be the taste of the public, too, ever so perverse or corrupt, architects must perforce comply with it, or else lose their practice; for, as is observed by the writer in *Fraser*, the public are their employers and paymasters; consequently will be either their capricious tyrants or their intelligent patrons, accordingly as they are ignorant of and indifferent to, or acquainted with, and capable of taking a rational interest in, architecture as one of the so-called fine arts. Nevertheless, and notwithstanding that it would be greatly to the advantage of both sides, also to that of the art itself, that there should be a kindly and generous feeling between the profession and the public, great pains appear to be taken to keep up just the reverse. While the public—at least those who may be supposed to represent it and express its sentiments—are continually sneering at architects and taunting them with incapacity, the latter are no less prodigal of taunts and censures upon the others; for, not a little strange to say, some of them have very invidiously, if not jealously also endeavoured to throw ridicule and odium upon the very few who, although not belonging to the profession, do study architecture with something of *con amore* feeling for it; and who

may therefore be considered tolerably competent judges of architecture as art. One professional writer, who sets up as an authority and influential teacher, has done so very pointedly,—yet whether with much ultimate advantage to himself may be questioned.

Now, how greatly better would it be for all parties, architecture itself included, if, instead of railing and talking *at* amateurs, critics and professional men were to talk and compare notes with each other, calmly, intelligently, and with sincere earnestness in the cause of what ought to be their common interest,—the advancement of the art on the broad basis of sound æsthetic principles.

Architects have erred no less unaccountably than egregiously in endeavouring as far as lay in their power to confine the study of their art to their own class, as if it would be either to their own disadvantage or that of their art were the public,—that is, those classes on whom the fine arts necessarily depend for employment and encouragement,—to acquire such insight into the *rationale* and principles of architecture as would render them competent judges of its productions. This error of theirs is so monstrous, so contrary to the common-sense and instructive policy which, in their worldly concerns, usually guide those who are otherwise more or less obtuse, that one would imagine it could have sprung up only in Laputa. The error, however, is not that of the present generation of architects, but a hereditary one transmitted to them by a long line of predecessors. Some of them, in fact, have become fully sensible of the hitherto prevailing mistake, and very willing to have it corrected.

That architecture is, as a fine art, at present the reverse of popular is undeniable. Even the *alma mater* of the arts of design, the Royal Academy, looks upon it only as an encumbrance, which, if it could do so, either legally or decently, it would gladly get rid of. The experiment of a separate annual exhibition of architectural designs and drawings, bears further testimony to the unpopularity of such productions of art. Trifling as the charge for admission was, the solitude in the rooms was generally such that it might be envied by the hermit beadle of Exeter 'Change. Nor was such desertion so much to be wondered at, perhaps, as to be regretted; for how can people be expected to relish what they do not even comprehend? Without the pale of professional students, very few persons even so much as understand, simple and easy to be understood as they are, the technical modes of architectural representation by means of plans, elevations, and sections.

In fact, the "intelligent public," as it is styled—sometimes, we might fancy, quite sneeringly and ironically—is little better than an ignoramus one in all that concerns architecture; and even as far as it affects to acknowledge its importance and its claims on patronage, it does so rather out of ostentation and for its own credit's sake, than out of genuine relish for, and judicious appreciation of the art. Of course, this opinion is only that of an individual. In giving utterance to it, I may lay myself open to contradiction—even flat contradiction: no matter:—let who like hurl at me the *flat*, I will—at any rate, I can—hurl at them the *sharp* in return.

Fraser, to which, if possible, I would gladly give the lie, reproaches the profession with having little or no feeling for their art; which disagreeable, if not also disgraceful fact, has been admitted by architectural writers themselves; certainly by all those who have contributed to the highly popular—certainly most extensively circulated series, known by the name of "Weale's Treatises." Whether the opinions conveyed through them proceed from Leeds, Talbot Bury, or Garbett, differ as they may in other respects, they are tolerably at one upon that point. Architects certainly do show themselves to be a very slow set: they neither do nor strive to keep pace with the advance that is being made in all branches of industrial and ornamental art. Those among them whose status in the profession, and whose experience, if not uniformly ability also, point them as the most proper persons to come forward and take the lead in any movement in behalf of architecture and its interests, are apt to hold back and keep aloof, with what looks very much like sulky and selfish indifference. They appear to scorn any manifestation of sympathy as derogatory from their own dignity. On the other hand, there is a great deal of activity, but it is such as to be of very questionable utility, since it seems to arise chiefly from the desire of display. Our attention is claimed for newly-hatched, unfledged theories, for dreamy, fantastical speculations, for crude and crotchetty notions, and for such arrant *nugæ difficiles* as the invisible curves of the Parthenon. The speakers or writers who favour us with that kind of instruction generally show themselves to be far more solicitous about words than meanings, so that brilliant as their language may be, their thoughts are, if not positively muddy, sometimes very muddily expressed. The ostentatious dallying with words, into which certain architectural writers have fallen of late, is no great proof either of earnestness on their part, or of any great capacity for instructing others. On the contrary, it looks very much like mystification and charlatanry.

Z.

READING CORN EXCHANGE AND MARKETS COMPETITION.

THE town council held a special meeting on the 30th December last, to receive a report from a committee of the whole council upon the subject of the proposed corn-exchange, &c.; from which it appears that the committee, having determined that the plans for the proposed erections should be open to competition to the Profession resident in Reading only, caused advertisements to be inserted in the local newspapers offering a premium of 25*l.* for the best design, and for the second best, 10*l.*

Eleven designs were in consequence sent in; and the committee, anxious to avoid the suspicion of partiality, and desirous at the same time of being guided in their judgment by the skill and experience of some practical man on whom they could rely, called in the aid of an architect, the selection of whom was made by ballot, to give a decision upon them. This gentleman (Mr. John Wallen, of London), after a minute examination of the designs, which were sent to him in London unopened, attended the committee, and delivered his decision in writing. "He considered the best design to be decidedly the one bearing the motto 'Dum spiro spero,'" which, upon opening the sealed envelope containing the competitor's name, was found to have been sent in by Mr. Francis Hawkes, jun. architect, the borough surveyor; "and that he considered the second best to be one marked with a 'Staff and flag,'" which was found to have been sent in by Mr. J. B. Clacy, architect, the surveyor to the Local Board of Health. The committee accordingly awarded the premium of 25*l.* to the first, and 10*l.* to the second, and resolved to adopt Mr. Hawkes's design.

STREET PITFALLS AND STUMBLING-BLOCKS.

To increase the confusion resulting from the perpetual breaking up of our streets, the Electric Telegraph Companies are laying their wires under the pavements and over the vaults, so that we may expect an oft-recurring disturbance of the stones, on every occasion of disarrangement in the telegraphic system: the sewers, the water, and the gas mains have now superadded, to the corporeal disorders of London, a nervous system that bids fair to keep up a chronic fever.

Our cousins in New York simplify these matters by carrying their lines over the tops of houses: lifted on posts they extend through long street ranges and traverse the causeways without incommoding the traffic: raised high on posts, there is no interference with domesticism beyond the first elevation from chimney-stack to stack: this is *going a-head*. The thing seems to work well, and is set up at less than half cost, since there is no excavation nor displacement of flag-stones, neither is the expensive process of double and treble coating at all requisite.

Surely our Boards might try this select trick of saving both money to their shareholders, and reiterated trouble to the public.

The wires, as exposed along the lines of railway in England, sometimes exhibit a week's washing flickering in the breeze, and even printed bills suspended (in the station offices); but a municipal Act might make it penal for laundresses to hang out clothes on the lines above their domiciles: this would be as easily accomplished as the restraints on bill-stickers in favour of doors and fences: the laundresses might go to Wormwood Scrubs, and the bill-posters to the Pict's-wall, or façade of the National Gallery, in case that the hoarding at Westminster Palace should be removed before 1862.

JOB CONNECTICUT.

HOW TO IMPROVE MODERN CARVERS.

UNTIL architects and others can feel a preference for small quantities of carved decoration, treated with the talent and feeling for art which alone can make figure or foliage worthy of its name, to having their walls bespattered with the trashy stuff we are accustomed to see, in which the large quantity, and the insult offered to the perhaps sacred character of the building, are the only things likely to arrest attention, the Cannon-street collection of examples can serve but little purpose, save that of showing men of an emulative turn and artistic temperament the wide gulf between fine lecturing and hard practice.

Those very few members of the carving profession—perhaps I had better say *trade*—who can appreciate, and who could profit by a study of, the deep feeling for nature and art evinced in these casts, are rather badly placed when they are directed to them as examples of devotional art, and in the same breath are asked, "How cheap?" While the present system exists there is but little use in referring to the works which were produced under such widely different circumstances. As a means of cure, let architects order no more ornamental detail than the means at their disposal will *amply* pay for; and then, instead of the sculptor's chisel being handled as it now is, by men whom nature intended for clever masons and miners, we should soon have no cause to blush, as we now must, at a comparison of centuries, which is, in this respect, so fatal to our own.

J. R. C.

PRESERVATION OF TIMBER.

INSTITUTION OF CIVIL ENGINEERS.

ON the 11th instant, Mr. Rendel, president, in the chair, the paper read was "On the Nature and Properties of Timber, with Notices of several Methods, now in use, for its Preservation from Decay," by Mr. Henry Potter Burt.

The author first examined the different species of home and foreign grown timber, their various properties, uses, tendencies to decay under certain circumstances, the most apparent causes of dry rot, the formation of fungi, and the action of wet and of heat; noticing the extraordinary duration of specimens of timber found in Egypt, in the ruins of Nineveh, and in the more recent monastic and castellated edifices of this country.

The chemical constitution of wood was examined, in order to trace the origin of decay, and to lead to the consideration of the most efficient means of arresting it. The necessity of some efficacious and yet moderately cheap system of preserving timber was insisted on, from the great demand for railway and other engineering works, not only in Europe, but even in the East Indies; where it was remarkable, that the wood which would resist the climate and the ravages of the white ant, was only to be found at such distances inland, that the expense of carriage, in a country devoid of good means of communication, rendered it more economical to buy fir timber in the north of Europe, convert it to the required dimensions, saturate it with creosote in England, and convey it by sea to India, for the use of the railway now in course of construction in that country.

The earliest record of preserving animal and vegetable substances were traced back to the Egyptians, whose mummies were embalmed by being boiled in pitch, found floating in the lakes: the linen and the timber so preserved

gave the first idea for adapting the process to the wants of the present period. Several of the patents granted were enumerated and commented on; the greatest space being devoted to those of

Kyan, for chloride of mercury;
Burnett, for chloride of zinc;
Margary, for acetate, or sulphate of copper;
Payne, for the use of two solutions in succession, mutually decomposing each other, and forming an insoluble substance in the pores of the wood;
And Bethell, for creosote, or oil of coal tar;—

Which last had, it was stated, by its extensive employment in harbour, railway, and other engineering works, proved, that when properly executed, the preservation of the timber from decay, and from the ravages of insects, might be considered complete.

The discussion was commenced, but was adjourned until Tuesday evening, January 18th, when, if the time permitted, the following paper was announced to be read,—"On the Construction of Fire-proof Buildings," by Mr. James Barrett.

THE PERIL OF PORTSMOUTH.

A SYSTEM OF NATIONAL DEFENCES.

MR. FERGUSSON, the author of a recent pamphlet on "Our National Defences," is better known to our readers by his works on "Beauty in Art" than for his knowledge of military engineering. Nevertheless, the latter subject is one which has engaged his attention for some years, and he has already written a general work on it, in which he developes the capabilities of a new system of fortification, which has since not only excited much interest and attention amongst military men, but has been lectured on and advocated by the Military Professor of Fortification at the Royal Military College of Sandhurst,—Lieut.-col. Adams; a report of whose lectures, pointing out the defects of the present systems and the advantages of Mr. Fergusson's was published in the *United Service Gazette*.

The pamphlet alluded to* is based, of course, on the author's system. Its chief object is to direct attention to the importance and the method of rendering our naval arsenals and dockyards impregnable. Looking, as we do, to our navy as the main defence of our sea-girt land, the author remarks, that to our navy impregnable dockyards and arsenals are absolutely essential. All of them, therefore, but above all Portsmouth, ought, immediately, to be rendered impregnable if not so already; and that they are not so, he proceeds to show, and especially as to Portsmouth, which he appears to be of opinion, four or five first-rate screw steam-ships could take in a few minutes by sea, while it was at same time being also easily entered by land.

The system of fortification which the author recommends is that of earthwork in place of masonry, both on account of its greater power to withstand cannonading or other modes of attack, and its less liability to do mischief to its own defenders when struck and injured. As to expense, there can be no question of the advantage of earthwork: Mr. Fergusson estimates it at only a fourth part of the cost of masonry. The great feature of this system of earthwork fortification consists in the digging of military canals of great width and depth, and the casting up of the excavated material into terraces and ramparts, tier above tier, so as to constitute massive mounds on which no opposing force of cannon or mortar could produce any essential impression.

While treating lately of the screw propellor, we remarked the circumstance that we are indebted to China for that great naval improvement, and that probably we should soon too be indebted to it for improvements in the sails of ships. It is a no less curious fact, that we are indebted to India for this *new* system of fortification recommended by Mr. Fergusson, of whose Indian experience our readers are well aware, and who, in this pamphlet, favourably contrasts "the rude but efficient mud forts of India," with "the scientific but inefficient works of the modern French and German engineers."

* "The Peril of Portsmouth: French Fleets and English Ports." By James Fergusson, Esq. With a Plan. Murray, Albemarle-street. 1852.

To the establishment of even the strongest of mere defences, as the author remarks, no nation can any more justly complain or take offence, than can the honest or the peaceable at the bolting and barring of our dwellings; so that this is the least obnoxious way of assuring our enemies of the hopelessness of invasion. And certainly we have to consider not only our own opinion of its practicability, but how best to convince our enemies, *à priori*, of its impracticability; for it is needless to continue perpetually on the *qui vive* against the hopes and efforts of enemies,—inviting by exposition of weakness,—if we can, by additional defences, induce them to give up all idea of doing us even temporary mischief. It is very doubtful whether invasion be practicable even temporarily, under present circumstances; but at all events common prudence justifies us in insisting that our defences shall be put upon the best possible footing, and prepared for every contingency.

The substance of Mr. Fergusson's pamphlet is contained in the following recapitulation of his propositions:—

"Taking these propositions in the ratio of their importance, the first, of course, is an efficient and efficiently-manned navy. The next is, placing its principal arsenal, Portsmouth, in a perfect state of defence; and after that comes the necessity of securing the Medway dockyards and Plymouth from attack; and subsidiary to these, throwing up batteries and mud forts in the bays and places most liable to attack; and lastly, after these are done or determined upon, comes the question of an inland fort [for the Crown, bank, and other valuables], which is certainly important, but not so pressing.

The nation generally is so fully alive to the importance of an efficient and well-manned navy, that there can be little doubt but that these objects will be attained as far as practicable; but not being so fully awake to the fact that, without secured arsenals and dockyards, the most efficient fleet is nearly useless, it may be pleaded that but little apology is necessary for publishing a pamphlet to direct attention to that branch of the subject, especially as it is accompanied by an exposition of a mode by which the desired object may be cheaply and certainly attained.

Were the recommendation contained in the preceding pages carried out, we need no longer sit cowering before our enemy, weighing his words of war or peace, to guess whether he intended to punish us for our former successes, or would graciously be pleased to forbear; but we might boldly look the world in the face, and, neither giving nor taking offence,—as free men, pursue the path of peaceful industry, which seems our proper and allotted task in the comity of nations to which we belong."

PROPOSED IMPROVEMENTS AT ASHFORD, KENT.

AT Ashford Junction, as many of our readers know, the South-Eastern Railway Company have their locomotive workshops and depôt, and here, as at other locomotive stations, the town will necessarily extend. There are already many evidences of movement: houses are in demand, and are being built in several directions. In connection with this movement we would direct attention to an advertisement in our present number relative to the Henwood estate, a compact tract of land about forty-six acres in extent, belonging to Sir E. Cholmondely Dering, Bart. one of the members for the county, which commands singularly fine prospects, and has been laid out for building by Mr. Godwin, architect.

The houses are all to be detached or semi-detached, with the exception of two blocks in the high road, with an opening between them leading to the church. Each house will have about a quarter of an acre of ground, and is so placed as to command a prospect; and there is provision made for a collegiate school, and for some smaller houses in a convenient position. The market at Ashford is the best in the county: capital brick-earth and a good stone for walls are to be found on the estate. It is proposed, in the first instance, to take very small ground-rents, and it seems to offer a singularly good opening for energy and enterprize.

WATER SUPPLY FOR BERLIN.—An English company have contracted to supply Berlin with water, erect two fountains, and clean the streets. We wish some Prussian company would do the like kind offices for London.

CHURCHWARDEN BUILDERS.

A CORRESPONDENT complains that at a parish church in the eastern part of London "some alterations are being made (not under the direction of the churchwarden, but) *by* the churchwarden himself," and he asks whether it is right for an officer to have anything more to do with the work of the church than looking over it. The practice is very common, but is none the less wrong, and has been the cause of much injury to our churches. We remember one parish church, out of a score, where the stone mullions of the windows being decayed, and the churchwarden being a carpenter, he *restored* them with wood. Two or three years afterwards, the churchwarden being a plasterer, he abused the taste of his predecessors, and covered the deal mullions with compo.

SCRAPERS FOR THE NATIONAL GALLERY.

I WAS surprised in going over the National Gallery a short time back, to see the quantity of dirt on the floor. In fact, it was nearly as dirty as the street carriage-way, and the room was quite in a mist from the dust rising. I would recommend, in the new picture gallery, or place for the reception of works of art open to the public, now proposed to be built at Kensington, to have the entrance-lobby and outer hall laid with a fine iron grating, formed of plate iron, framed together, half an inch apart and 1½ or 2 inches deep, according to the bearing, the top edge filed, to act as a scraper, to cover the greater part of the principal walking-way approaching the exhibition-room; beyond which might be a large mat let into the floor. The iron grating or scraper would take off the greater part of the dirt collected, in walking through the streets in dirty weather. They should be made in parts, to take up; or hinged, for the purpose of taking out the dirt collected in the receptacle under them. The mat being used after passing the grating, would keep the room comparatively clean, and not as at present, which must injure many things, as well as give a deal of extra trouble in cleaning. At the entrance next the street at the tavern in the Strand, opposite Exeter Hall, I laid one which I made, and the benefit was very obvious. There is no inconvenience in walking on it. A notice-board might be put up, requesting visitors to use the scraper and mat. H. K.

THE LATE STORMS, AND THE BUILDINGS INJURED.

THE *Gateshead Observer*, in noticing the fall of the steeples at Middlesborough, Stockton, and Eighton-Banks, remarks, that "it is worthy of architectural consideration whether it is expedient to have vanes or weathercocks, with long iron shafts, at the summits of spires. In various instances the weathercock flew away in the wind, tearing off the stone in which it was roosting or rooting."——The parish church of Eskdalemuir, about fourteen miles from Langholm, Dumfriesshire, was struck by lightning, and the fabric, with the spire, was entirely destroyed. This is doubtless another of the many instances in which spires, unprotected by lightning-conductors, not only are exposed to injury or destruction from accidental strokes of lightning, but by their prominence or elevation actually attract and concentrate the force which is to strike them in their helpless want of "a way for the lightning" so attracted by them.——During the hurricane, the high chimney on Messrs. W. and J. Noake's salt works, at Droitwich, was so much injured that half of the structure must be taken down. The violence of the tornado was so tremendous that the middle of the chimney was completely twisted. This chimney is 135 feet high, and 72,000 bricks were used in its erection.——The windows of a large mill in course of erection at Preston not being filled in with their frames, the wind entered and threw down or blew up the whole structure of five stories high and fourteen bays in length. The roof was on and the floors were laid. The loss is estimated at 5,000*l.* or 6,000*l.* The East Lancashire Company's platform at the Preston station was quite destroyed. The corrugated iron roof, about 70 yards in length, and

many tons in weight, was torn off and shattered into pieces of all shapes and sizes. A tall factory chimney was blown down, and many private houses were reduced to ruins.——Elsewhere in the north-west of England the wreck of broken sea-walls, embankments, and piers, injured railways, &c. was very great. The Maryport lighthouse was demolished along with its pier.——On the 18th, or seven days before, there was an extraordinary storm of wind on Lake Ontario, in the north of America. Can this have been the same storm? At Liverpool, on the 25th, it was noticed that the horizontal motion of the atmosphere, as shown by the anemometer, was about seventy miles an hour. Do not the distance of Lake Ontario, and the time, accord with this rate of movement?

RAILWAY MATTERS.

THE aggregate length of new railways opened during 1852 was, in England and Wales, 342 miles; in Scotland, 17½ miles; and in Ireland, 103 miles: total, 462½ miles. The lines opened in England and Wales were:—the Bangor and Carnarvon, 7 miles; Great Northern "Towns' line," 59½; Birmingham and Oxford Junction, 55½; Birmingham, Wolverhampton and Stour Valley, 13; London and South-Western, Alton branch, 9; Leeds Northern extension to Stockton, 29; Newport and Pontypool, 20; North and South-Western, 3½; North Staffordshire, branch to Ashbourn, 10; Oxford, Worcester, and Wolverhampton, Evesham to Dudley, 41½; South-Eastern, Robertsbridge to Hastings, 12; South Wales, at Chepstow-bridge, and Swansea to Carmarthen, 32½; St. Helen's branch to Garston Docks, 2; Shrewsbury and Hereford, Shrewsbury to Ludlow, 28; West Cornwall, Hayle to Penzance, 7½, and Redruth to Truro, 9, together 16½; Whitehaven and Furness, 1, at Whitehaven, Vale of Neath, 2½: total, 342 miles. The Scotch lines were:—the Morayshire, from Lossiemouth to Elgin, 6 miles; St. Andrew's, 4½; Stirling and Dunfermline, Alloa to Stirling, 7: total, 17½ miles. The Irish were:—Dublin and Belfast Junction, Wellington Inn to Portadown, 22¾ miles; Londonderry and Enniskillen, Strabane to Omagh, 20; Londonderry and Coleraine, Londonderry to Newtownlimvady, 18¾; Waterford and Kilkenny, Jerpoint to Dunkitt, 16½; Waterford and Limerick, Tipperary to Clonmel, 25: total, 103 miles.

At a coroner's inquiry on the body of a man killed by a recent railway accident, Mr. Wakley said it was a remarkable fact, that, notwithstanding the millions of travellers who had passed over the North-Western and the Great Western lines in Middlesex, during the twelve years he had been coroner, he had never held an inquest on the body of a *first-class* passenger. The coroner expressed a wish that the company would introduce cushions inside the second and third class carriages, be they ever so rough, as it would furnish protection to passengers in case of collision. "First-class passengers," he remarked, "escaped in consequence of their heads coming in contact with soft cushions, but in a second or third class, unless a man had a skull of extraordinary thickness, it was not likely he could stand collision with oak." Now, why should not second and third class passengers be as *safely* conveyed as those of the first class? Cushions are not wanting in second and third class carriages from their mere unavoidable expense: very cheap and yet efficient cushions might easily be added: horse-hair and morocco leather, or silk damask, are by no means essential. What can the motive be, then, which induces railway directors to deprive second and third class carriages of cushions? Are we to understand that they positively imperil the lives of the main mass of the people merely for their own gain,—or to compel the public to pay more than they can afford, in order to avoid the positive risk of getting their skulls split? As well might second and third class carriages be made with rubbishy wheel-tires, or without springs, or be dragged along like hurdles without wheels at all, in order to jolt the contents into first-class carriages, as deprive the second and third class "traffic" of what is essential to safe conveyance. The people are assuredly much obliged to railway directors for the respect thus paid to their safety and their lives. The blood-money, however, had better be expended in providing those cushions which an experienced coroner has shown to be essential to the safe conveyance of the public in the public carriages. The recent wholesale smash affords a significant corollary on Mr. Wakley's experience in this respect as a coroner.

It is suggested, in the columns of a contemporary, that the dreadful results of collisions might be obviated by having fenders of wool packed in gutta percha in advance of the engine: springs, it, is added, might also be introduced behind the woolpacks.

A new method of manufacturing railway carriages has been patented by Mr. C. Arnoux, of Paris. He proposes to mount the bodies on frames constructed similarly to those of carriages for common roads; the axles being capable of shifting with respect to each other, instead of being fixed in parallel positions. He claims—1. The mode of constructing railway vehicles, by which they can be directed on the rails without coercion or undue resistance, whatever may be the train. 2. The setting railway vehicles on two axletrees, and the turning the axletrees at discretion in chairs, to facilitate the traction and avoid the axletrees clutching. 3. The jointing the fore and hind axletrees of vehicles on railways. 4. The grinding the axletrees of vehicles on railways.

Mr. Peto's railway plan for North and South Jutland, says a Copenhagen letter, has now been officially communicated on his behalf by Justice Councillor C. M. Poulsen. This gentleman addressed the Jutland members of the Lower House on the subject in a private meeting. He has since presented Mr. Peto's formal petition for the concession to his Danish Majesty, and the Government will doubtless bring the necessary Bill before the Parliament. The line will go from Flensborg to Frederickshavn, crossing the Limfjord, by a bridge about 1,700 feet long. The total expense of the whole line is calculated at 3,000,000*l.* sterling. No guarantee will be asked for the general line; but for that part running from Viborg to Frederickshavn, inclusive of the costly bridge, the amount for which portion is calculated at about 800,000*l.* a state guarantee of 4 per cent. for a certain time—about twenty-two to twenty-five years—will be looked for. The Swedish papers lay great stress on this undertaking, and point out its immense importance for communication and traffic to Sweden, Norway, Finland, and Russia. When this railway is finished, and that between Stockholm and Gottemburg is completed, which must be the case in a few years, a traveller from Stockholm may reach Hamburg in twenty-four hours.

The average cost of railways in the United States has been found to be about 25,000 dollars per mile.

ELECTRO-TELEGRAPHIC PROGRESS.

THE extent of telegraphic communication, completed and in operation throughout the world, at the beginning of the present year, has been estimated at nearly 40,000 miles. Of this amount there were nearly 4,000 miles in Great Britain, of which 100 miles only were under ground, with about 400 or 500 in course of construction in England, Scotland, and Ireland, and as many more projected. In America there were 20,000 miles completed and in operation, with 10,000 more in process of construction. Russia has just commenced her system of telegraphs between St. Petersburgh, Moscow, and Cracow, and the ports of the Baltic and Black Seas. About 4,000 miles are about to be constructed in India. The only unsupplied portions that will soon present themselves on a telegraphic map of the world will be Australia, Africa, and China.——Contractors have commenced operations for laying down an underground telegraph from Cornhill to Liverpool, Manchester, and Birmingham, along the old coach road; and the line, when completed, will place these towns in immediate communication with the continent, besides furnishing a duplicate line of telegraphic communication with the metropolis.——The Danish submarine cable, 13 miles long, that was to be sunk across the Great Belt to Nyburg, has, it is said, failed in its manufacture.——The negotiations between Austria and Russia relative to the junction of their telegraphic lines are nearly terminated. The Russian line is to be taken from St. Petersburgh. The junction is to be effected on the frontiers of Gallicia by a special line, which is not to be connected with the German telegraphs.——One of the projects for a telegraph between the continents of America and Europe seems to have been further elaborated. It is proposed to commence at the most northwardly point of Scotland, run thence to the Orkney Islands, and thence by short water lines to the Shetland and Faroe; thence, by a water line of 200 to 300 miles, to Iceland; from the western coast of Iceland to Kioge Bay, on the eastern coast of Greenland; crossing Greenland to Juliana's Hope, in 60° 42′, and thence by a water line of about 500 miles across Davis' Straits to Byron's Bay, on the coast of Labrador. From this point the line to be extended to Quebec. The entire length is estimated at 2,500 miles, the submarine portions at from 1,400 to 1,600 miles. From the Shetland Islands it is proposed to carry a branch to Bergen, in Norway, connecting it there with a line to Christiana, Stockholm, Gottenburg, and Copenhagen; from Stockholm a line to cross the Gulf of Bothnia to St. Petersburg. The whole expense of this great international work is estimated considerably below 500,000*l.* One rather grave objection to the practicability of this project we have already stated, namely, that it *crosses* more than one route traversed by icebergs, which often rake the ground even at great depths, and would inevitably destroy the wires, once at least, if not oftener, during almost every summer.——The laying down of the first sub-marine cable in America, and which is ultimately intended to connect it with Europe, has just been successfully completed. The cable which forms the first section of the Newfoundland Electric Telegraph Works has been sunk between Cape Tormentine, in the province of New Brunswick, and Carlton Head, on Prince Edward's Island.

PARKS FOR THE PEOPLE.

THAT portion of London comprised in a parallelogram, in width from Islington to Camberwell, and in length from Paddington to Limehouse, may be said to contain 50 square miles: about two-thirds of the population are lodged within these limits: beyond them the intervals between streets and rows of houses are wider, and the residents being nearer to the open fields have the advantage of better air, with greater scope for healthful recreation.

Within the urban precincts, one full third part is covered with houses, the remaining two-thirds being pretty equally divided between causeways and curtilages: as for gardens or grounds for exercise, not one dwelling in a hundred possesses them. This limitation is, however, greatly mitigated by the parks and the few open spaces reserved in bygone ages for the great commercial city.

With the spread of buildings further reserves of open space have become indispensable, and care has been taken to plan out parks for coming generations.

Long-promised parks are held out in prospect. Victoria-park on the eastern excrescence has been inclosed, and in a manner laid out: little, however, can be said in praise of its plantation or finish. Battersea, on the western limb, has been attained, but has lain for years in rude desolation: the latter, although also a low situation, has the advantage of easy access by river, besides that the vicinal heights, together with the water scenery, adapt it more peculiarly for landscape gardening. It appears that 150,000*l.* were bestowed upon the purchase of ground, and yet no effort has been made to convert the acquisition for public uses. The orgies of debauch are carried on there with impunity, whilst being without a *garde champêtre*, or (stranger still for so large a tract) without a *salaried ranger*, the security of any wanderer over the profitless waste is endangered by pigeon-shooting, larking, or rifle practice.

To make amends for the inauspicious stagnation in these wide reserves, there is in a position more under public view, and probably more proximate to the convenience of some official parties, a singular evidence of activity observ-

able. At Kensington, the open green (or rather russet) space of 14 acres has been enclosed with iron railings, laid out, and planted, at a cost of 7,000*l*. Now, that sum of money expended in the planting and formation of the lately-acquired parks would have done wonders; moreover, several years' growth of trees and shrubs would have, by this time, improved the land in drainage, and matured the tribute of pleasure now to be derived from the countless flowering varieties that enrich our nurseries.

The crowds that frequent the only flower and shrub walk London can boast of (in Kensington-gardens) sufficiently attest the attractive influence of floriculture: in fact, it has become an infant school for the instruction of the rising generation, and its sedative effects on the man of business who deviates from his course to enjoy the scene is often acknowledged: the saunterer or valetudinarian, too, who has no private pleasure garden, has good reason to feel grateful to those whose benevolence and taste suggested this really odorous boon.

It might be vain *again* to point out the singular appropriateness of the inclosure within Hyde-park for a small outlay on shrubs and flowers, if that blot or cancer in its very heart were, as it ought to be, *dedicated to the public:* at present an old house (rarely occupied) perpetrates the fiction of a resident sub-ranger: another blank is the shapeless hovel barrack (for a light troop) which defiles the point of junction with the gardens at Kensington: the *stack-yard* and guardhouse need not be mentioned.

Some liberality, with a little good taste, would take little from the Woods and Forests' exchequer: some of the surplus income would bring back a large return in popularity.

St. James's-park should also be cited as an evidence of good taste, and as a concession of inestimable value to the public: its shrubs and flowers, with the general arrangement, do reflect credit on the authorities who had it laid out.

Regent's-park for some years has been extremely well kept and much improved under the superintendence of a practical and superior horticulturist: he has, however, been displaced before he had the power (often solicited, but never conceded to him) of planting Primrose-hill: neither could he obtain for the inhabitants of Portland-town an access over the canal bridge to the park, which is fenced off for half a mile (along the canal), and leased to a favourite. The disgraceful condition of Hyde-park, devoid of ornament, may be more congenial to salaried sinecurists, as somnolence in office may be a better security for biding tenure. QUONDAM.

Notices of Books.

ILLUSTRATED EDITION.

Childe Harold's Pilgrimage. By Lord BYRON. London: Murray, 1853.

Messrs. Creswick, Cockerell, Warren, Howse, Aylmer, and Sir Charles Fellowes have contributed thirty-two drawings, some of them very charming, to illustrate the wonderful "Romaunt" of the wandering, wayward Childe, a poem which will last as long as the English language is spoken, and much longer than some of the countries which it so vividly paints. Though the scenes of earthly grandeur and earthly decay, therein touched with light, should disappear,—

> ——— "Though all were o'er,
> For us re-peopled were the solitary shore."

Amongst the best of the views in the book are Delphi, Mafra, Cadiz, Ehrenbreitstein, Venice, Lake Albano, and the Drachenfels. What a bright day there does the last recall to our memory. It is a brilliant morning in early summer, and we gaze from the "castled craig" over miles and miles of country, through which runs the sinuous Rhine, transformed by the sun into a glittering stream of silver. You may hear the tinkling bell of the church in Königswinter at the foot of the mountain, the air is so still. Before us, cradled in the "exulting and abounding river," lies Nonnenwerth (the Nun's Island), and on the opposite side rises Rolandseck,—with its ruined arch and its romantic story,—while, farther behind, are Bonn and Godesberg. It is indeed,—

> "A blending of all beauties; streams and dells,
> Fruit, foliage, craig, wood, cornfield, mountain, vine,
> And chiefless castles breathing stern farewells
> From grey but leafy walls, where ruin greenly dwells."

How pure is the air, how free are the spirits, and how buoyant the feeling! Thanks, pleasant book, for a summery recollection in spite of the rain outside.

Natural Principles of Beauty. By D. R. HAY, F.R.S.E. Edinburgh and London: Blackwood, 1852.

THE treatise just now published by Mr. Hay, is put forth as complementary to his previous works, setting forth his theory of the Beautiful in Form. The author considers that a certain and definite law of proportion, common to architecture as well as to sculpture, may be found fully developed in the human figure. He maintains that certain "harmonious angles" give the key so long fruitlessly sought for, of the correct proportions of the human frame, both male and female, and he inserts measurements of ordinary nature, to show how closely the proportions agree with those of his theoretical figure. He maintains, with truth, that the investigations he details assist in proving "that harmony and simplicity constitute the beauty of creation, and not only show that the noblest work of creation responds perfectly to this test of its proportions, but prove that He who moulded external nature placed in the mind of man the power to judge of His work, and discriminate amongst the various degrees of beauty it developes."

The Modern Housewife, or Ménagère. By ALEXIS SOYER. New edition. London: Simpkin and Marshall, 1853.

SOYER's efforts to improve the living of the poor (how much this is needed it needs no great exploration to discover) have given him a claim on us that we have before now acknowledged, and which leads us to mention the new edition of his "Modern Housewife," just now published, wherein he has ungallantly, but not without a purpose, reduced his heroine, Hortense, to a cottage and straitened circumstances. The object is evident, and the author makes the most of it. "Homes" are our province, and we do believe that a little attention to cookery on the part of those whose province it is to adorn and sanctify a home, may be usefully advocated. Those whose proper sphere is the drawing-room should not *always* be above the kitchen, but should dive into its recesses, and master its mysteries. Some of our lady readers will be indignant with us, perhaps, for the remark, and fancy that they have found in us the author of a recent poetical encomium on woman, which runs thus:—

> "A cure for every mortal bane,
> The polish'd link in beauty's chain;
> A paragon that hath a charm
> Man's fiercest passions to disarm;
> Her voice to him is like the dove,
> For him she weaves the web of love,
> For him her prayer to Heaven ascends;
> His manners and his shirts she mends."

We will put up with the reproach if they will adopt the hint. As a companion in their basemental expeditions they will find Hortense a valuable guide. She is a little affected and nonsensical at times, which of us is not? but is nevertheless well-informed, intelligent, and kind-hearted. She will prove a powerful ally in our war against "muddle."

FIRES IN LONDON.—A report shows that from 1st January, 1852, upwards of 1,000 fires have occurred in and near the metropolis. The loss of property is roughly estimated at about 2,000,000*l*.

LEEDS TOWN-HALL COMPETITION.—Sixteen sets of drawings were sent in. The successful competitors are,—first prize, of 200*l*. to the design of Mr. Broderick, of Hull; second prize, of 100*l*. to Lockwood and Mason, of Bradford; third prize, of 50*l*. to Messrs. Lovett and Co. of Wolverhampton. The committee were guided in awarding the premiums by Sir Charles Barry; and no one seems to doubt that the *best* design has been selected for the first prize; but very great doubt, indeed, has been manifested by professional, as well as non-professional, men, and by builders of eminence also, whether the building can be erected and completed for the sum of 35,000*l*. the amount stipulated by the town-council to be expended.

Miscellanea.

LITERARY AND ARTISTIC BANQUET AT BIRMINGHAM.—On Thursday in last week, a banquet in connection with the Literary and Artistic Institutions of Birmingham, took place in the assembly-rooms of Dee's Hotel there. The banquet originated in a combined movement on the part of the Society of Artists, the Fine Arts Prize Fund Association, and the Society of Arts and School of Design, together with those generally interested in literary and artistic matters in the town. Previous, and as a preliminary to the banquet, a meeting was held in the rooms of the Society of Artists for the purpose of presenting Mr. C. Dickens with a diamond ring and salver. At Dee's Hotel 200 gentlemen sat down to dinner, and afterwards a numerous party of ladies were admitted to the orchestra. The chair was occupied by Mr. H. Hawkes, the mayor of Birmingham; vice-president, Mr. P. Hollins. Among the company present were Lord Lyttelton, Sir C. L. Eastlake, P.R.A. and various Royal Academicians, Mr. C. Dickens, Archdeacon Sandford, several members of Parliament, clergymen, and others. Sir C. L. Eastlake, in course of his speech, said, that among other recommendations, one certain, and by no means unimportant, consequence of familiarity with good works of art, was to induce a reference to their sources, to awaken a more intelligent attention to nature, and stimulate a desire for its imitation. In this view works of art might be regarded as an introduction both to nature and to books. The exhibition of master works of sculpture must, he conceived, be in that town especially desirable. Besides contributing to the results to which he had alluded, such works reminded them that no beauty in the mere material could exempt the artist from aiming at the higher beauty of form and arrangement. The skill of a certain class of artists might hereafter be called into requisition in a greater degree than now, from the increased use, for decorative purposes, of the most precious of metals in consequence of its actual and promised abundance. He trusted that in that case the beauty and splendour of the material which it was the duty of the artist to display would not supersede the exercise of taste in its elaboration.

FRENCH SCREW LINE-OF-BATTLE SHIPS.—That the amalgamated engineers who emigrated to France have *patriotically* lent a lift to French steam-engine manufacture appears to be pretty plain. The following from the *Phare de la Loire* will recommend itself to the attention of the new Board of Admiralty:—"For some time past the establishment of Indret has been manufacturing steam-engines for vessels in different ports. One has been sent to Lorient for the *Jean Bart*, and one to Cherbourg for the *Marceau*. At this moment, also, experiments are making on the *Montebello*, at Toulon, with an engine of 160-horse power from Indret, intended as an auxiliary for first-class sailing-ships, to leave port without the necessity of being towed. An engine of 450-horse power is about to leave Indret for the *Austerlitz*, at Cherbourg. In construction there is one of 400-horse power for the *Assas*, which is building at Rochfort; one of 650-horse power for the *Ulm*, which is building at the same port, and one of 400-horse power for the *Phlégéton*, which is building at Cherbourg. To these we must add a machine of 1,200-horse power which the Minister of Marine has just ordered for the *Bretagne*, which is to be built at Brest."

NEW PATENT LAW.—The attention of the Commissioners of Patents has been called to the anomalous operation of the old and new patent laws. According to existing arrangements, some 500 patents, applied for in October, will in many cases take precedence in point of patent-right over a number of patents applied for in September, because those under the new law date from the granting of the provisional protection, while those under the old only date from the passing of the great seal, and in cases of similarity of invention the inconvenience is obvious. The commissioners have intimated that they cannot interfere.

LIVERPOOL POLYTECHNIC SOCIETY.—FLEXIBLE BREAKWATERS.—The annual meeting of this society was held on Monday week, at the Royal Institution. Mr. W. H. Smith read a paper on his new system of recoil harbours of shelter and defence. We have already given some account of this new kind of breakwater. A small harbour on the improved principle, said the reader, would be formed of a series of independent open frames or gratings of wood or iron, and be of sufficient depth and capacity to shelter a dozen large ships, at a cost of 8,000*l*. the same as would in stone involve an outlay of about 200,000*l*. The principle of the invention was that of nature, where yielding is the universal law, the only mode by which the weaker body can be made to withstand the stronger.

ABERYSTWITH HARBOUR.—The pier and its parapet wall have been considerably damaged, the pier breached almost through in two places, by the lash of the waves during the late hurricane, and the whole now presents a very dilapidated appearance.

RAT-CATCHING EXTRAORDINARY.—Two men were lately brought before Sir C. Marshall, at the Guildhall, London, on the charge of being found unlawfully in the city sewers. The police-constable who took them into custody said he found on them eighteen live rats and a key with which they opened the gratings. Sir C. Marshall inquired how the prisoners got their living, when Gardiner said that he was a master-rat-catcher, and that Jack was his assistant. Sir C. Marshall.—But what business had you underground, damaging the sewers? Gardiner.—We catches no end of rats there, sir, and when once we gets into the sewers we keeps on running and catches the rats as we goes, and we sometimes gets fifty in an hour, as they run up the arches overhead, and sells 'em for 2s. a dozen. We got in at the Custom House, and worked our way all round Whitechapel and from there to Cornhill. I can find my way all over London through the sewers. I've been at it for years, but my assistant, Jack, has only been nine months in the line. Sir C. Marshall.—What are the rats required for? Gardiner—Why, your honour, them sporting gents at the west end pays 6d. a piece for live rats, and that's why we goes into the sewers and catches them. We often meet the men belonging to the commissioners in the sewers, but they never interferes with us as long as we don't do no injury to the walls. Sir C. Marshall said, as the commissioners of sewers or their men did not complain of, or interfere with, the prisoners in their extraordinary occupation, he should not do so, and therefore discharged them. "Them sporting gents" are of some use after all: in their association with the "master rat-catcher" and his assistants they rid the community of noxious and troublesome vermin.

MR. WOODIN'S CARPET-BAG AND SKETCH-BOOK.—Without any *prestige*, Mr. Woodin came before the public with an entertainment under this title, at the Marionette Theatre, in Adelaide-street, Strand, and by the force of his ability alone has made a success. The theatre is full every night, and will, we have no doubt, continue to be so for some time to come. His personations are admirable, whether of women or men, English or Scotch, and the whole is, moreover, put forth in a modest and unpretending manner, that would insure consideration for a much less clever and amusing entertainment.

DRAINAGE OF GREAT YARMOUTH.—In a pamphlet, titled "Suggestions for an Economical Drainage of the District of the Great Yarmouth Local Board of Health," Mr. Cory, clerk to the board, suggests that the cost of drainage might be defrayed by leasing the drainage-works to a company, granting that company, at same time and on a similar lease, the cultivable part of the North Commons for experimental irrigation. The outlay, Mr. Cory points out, might thus be defrayed in forty years, without any burden on the ratepayers. Such a company as that alluded to, he says, could be easily formed.

METROPOLITAN COMMISSION OF SEWERS.—At a general court held on 4th inst. after some attention given to the want of drainage and the prevalence of fever in Bethnal-green, from which it appears that nothing can be done till the plan for the main drainage of the metropolis be undertaken, Major Dawson brought under notice the financial statement of the commission, for which he had moved some months since. The commissioners desire to have this statement as fully published as possible. The following is the substance of the document, being an estimate of the amount of available balance for extraordinary works in the several districts for the ensuing year, after providing for the current ordinary expenditure of the commission:—Present state of the funds for the whole districts: credit, 3,351*l.* 19s. 4d.; debt, 58,991*l.* 16s. 8d.; leaving a debt of 55,639*l.* 17s. 4d. Amount derivable from uncollected rates, 19,540*l.* Available balance, after taking credit for amount to be derived from out-standing rates now in collection:—Credit, 13,871*l.* 19s. 4d.; debt, 49,971*l.* 16s. 8d.; leaving a debt of 36,099*l.* 17s. 4d. Amount to be raised by new rates, 181,230*l.* Available balance, after making new rates:—Credit, 146,543*l.* 9s. 6d.; debt, 1,413*l.* 6s. 10d.; leaving a credit of 145,130*l.* 2s. 8d. Amount of ordinary expenditure per annum, 48,466*l.* 6s. 5d. Available balance for extraordinary works:—Credit, 101,242*l.* 19s. 9d.; debt, 4,579*l.* 3s. 6d.; leaving a balance for extraordinary works of 96,663*l.* 13s. 3d. The above statement does not embrace the following liabilities: Permanent loans, 80,423*l.*; claim for ordnance survey, 24,213*l.* 17s. 5d.; making a total liability of 104,635*l.* 17s. 5d.

THE CEMENT OF THE PYRAMIDS.—Notwithstanding the numerous patents for cements, and other contrivances for excluding moisture from dwelling-houses, we daily hear complaints of damp walls. The exterior of the great Pyramids, near Cairo, are coated with a varnished cement, which has lasted for thousands of years, and is as perfect and glossy as the day it was placed there: if a small portion were examined by competent persons, its composition might be ascertained, and be useful in our humid climate.—W.

ELEMENTARY DRAWING A BRANCH OF NATIONAL EDUCATION.—A circular has recently been issued from the Committee of Council on Education to the authorities of the several training-schools under inspection, calling their attention to the steps which have been taken towards organising local means of instruction in drawing, as part of elementary education. The committee remark, that the training-schools for masters and mistresses are the points at which the most effectual impetus can be given to the promotion of the object in view; and an intention is announced of causing an inspection to take place into the system of drawing pursued in these training-schools. One of the results contemplated is, that evidence of a certain proficiency in drawing should be afforded by each student on account of whose examination the training-school receives a grant; and, sooner or later, it might be regarded as improper to sanction the apprenticeship of pupil teachers to masters or mistresses who had neglected to profit by the means now to be made available for acquiring a practical knowledge of elementary drawing. The committee emphatically record it as their opinion that the power of accurately delineating the forms of objects ought no longer to be regarded as an accomplishment only, or the result of some rare natural aptitude, but as an essential part of education. This circular was issued before the late change of ministry, but there is said to be no doubt that the intention will be fully carried out under the present Government.

PATENTS COMPLETED UNDER THE NEW LAW.—J. Macdonnell, Temple-mead, Bristol—Construction of railways; W. Crosskill, Beverly—Machines for cutting or reaping growing corn, clover, and grass; W. A. Gilbee, South-street, Finsbury—Disinfecting putrified and fecal matters, and converting fecal matters into manure, also applicable to disinfection of cesspools, drains, &c.; W. Chisholm, Holloway—Purification of gas, and the obtention of certain products during purification; A. Slate, Dudley—Manufacture and construction of cores and core-bars, used in production of hollow castings in iron and other metals; W. Clarke, Manchester—Joints for connecting metals; R. Mallet, Dublin—Fire-proof and other buildings and structures; W. T. Henley, St. John-street-road—Electric telegraphs; R. W. Parker, Roxbury—Giving rotatory motion to a shaft of a circular saw or other mechanical contrivance; A. Kent, Chichester—Glazing; J. Hopkinson, Huddersfield—Steam-boilers; W. B. Johnson, Manchester—Stationary steam-engines; J. Sinclair, Stirling—Engines to be worked by steam, air, or water, the said improvements being also applicable to pumps; F. Fife, Newcastle-upon-Tyne—Steam and water gauges.

WAGES IN AUSTRALIA.—The profits at the diggings regulate the rate of wages elsewhere in the colony, and that rate is high at Sydney—twice as high at Melbourne. The *Sydney Shipping Gazette* states that the rates of wages per week are—For carpenters, 50s. and 60s.; ship carpenters, 72s.; masons, 50s. to 55s.; wheelwrights and dray builders, 120s. to 200s. That is on piece-work; for the following are the wages paid per day:—Stonemasons, 8s. to 8s. 6d.; carpenters and joiners, 7s. to 9s.; bricklayers, 8s. to 8s. 6d.; masons' and bricklayers' labourers, 7s.; common spademen, and other inferior building labourers, 5s. to 6s.; plasterers, 8s. to 9s.; painters and glaziers, 8s. 6d. to 9s.; foremen and overseers of buildings, 10s. 6d. to 15s.; sawyers—12s. per 100 feet, superficial, soft wood; carters and draymen, per day, 15s. to 20s.; brassfounders, 9s. to 12s.; engineers and millwrights, 10s. to 15s.; ironfounders, 9s. 6d. to 10s.; shipwrights, 12s. 6d. to 15s.; blacksmiths, 9s. to 10s.; wheelwrights, 10s. 6d. to 12s.; coopers, piece-work, averaging 10s. 6d.; cabinet-makers, 10s. 6d. to 12s.; upholsterers, 8s. 6d. to 10s.

THE PENNY HOTELS OF CARLISLE.—In a recent number of *Lloyd's Weekly Newspaper*, now edited by Mr. Douglas Jerrold, is a paper signed "Hard-fist," written, the *Carlisle Journal* believes, by his son, Mr. W. B. Jerrold, in which a few scenes in the low lodging-houses at Carlisle are pathetically, as well as humorously, sketched. There are no less than thirty of these "twopenny hotels," as "Hard-fist" calls them, in this small cathedral town. They can accommodate altogether between 400 and 500 travellers. The present police superintendent who had gained previous experience in the metropolitan force, is said to have got all these houses fairly under control. They are well ventilated, clean, and not over-crowded. "The police," says the writer, "visit them at all times of the night; and, by kindly treatment, the superintendent has so won over the landlords, that they are always on his side when he is in search of an offender 'Within the last thirteen weeks,' said the superintendent, 'no less than 11,000 vagrants have passed through this little town.' Hapless lot—the good and the bad—the unfortunate and the wilfully sinful—all jostled together, and breeding moral pestilence for one another. How may this be mended?"

SURVEY OF MARCH.—LOCAL BOARD OF HEALTH.—The survey and plans of this town have been completed and sanctioned by the General and Local Boards of Health. They contain all levels and other data required for carrying out the application of the Public Health Act, the provisions of which are much needed there. The plans consist of two finished maps, one drawn on twenty-four sheets of double elephant, to a scale of ten feet to one inch, and the other exhibiting on one sheet the whole area surveyed to a scale of two feet to a mile, thus serving as an index to the separate sheets. Mr. Austin, engineer in chief of the General Board, in his report recommending the use of these plans in carrying out the works under the Public Health Act, says:—"This survey has been executed by Messrs. Marshall and Tuthill, of Westminster. The plans have been drawn on both the prescribed scales, and are in accordance with the specimen plans of the General Board. They have been executed with great care and neatness, and are in this respect very creditable to the surveyors."

RATING THE GREAT WESTERN RAILWAY.—The award of the arbitrator as to the rateable value of this company's line, so long the subject of contest, has just been made. The assessment by the parishes was at an assumed rateable value of 600*l.* for each mile of railway. The arbitrator, we are told, has now declared that the rateable value in the parishes of Coates, Bisley, and Sapperton, ought to have been at 25*l.* per mile only; in Minchinhampton, at 55*l.* per mile; in Rodborough and Stroud, at 135*l.* per mile; and in Painswick and Stonehouse, at 175*l.* instead of 600*l.* per mile.

THE PROPOSED NEW LITERARY AND SCIENTIFIC SOCIETY AT BIRMINGHAM.—This new educational institution, according to the local *Journal*, will form a sort of college for the working classes, be in some respects free to all, and be in no respect exclusive or sectional in its character. It is intended that the society shall organise measures for securing the erection, by subscription, of a spacious building. In this it is proposed to provide a lecture theatre, with seats only on the floor in the first instance, but capable of admitting of the construction of a gallery, should such an addition, at any subsequent period, be found necessary or desirable. The plan will likewise embrace three museums, the first of which will be devoted to the raw materials of the industry of this district, geological and mineralogical specimens, &c.; the second to articles illustrative of manufacturing processes, as well as to finished specimens of different dates and countries; and the third to machinery and models. The other features of the scheme comprise a chemical laboratory for lectures and classes; class-rooms: a reading-room, with a scientific and general library of reference: and as an entrance to all the departments, a large hall adapted for the reception of sculpture or other works of art. Another department will be devoted to mining records.

TO CORRESPONDENTS.

"An Old Subscriber," (the unsuccessful competitors under such circumstances, and looking to the "printed instructions," would not be able to enforce payment), "Constant Reader," "H. P.," "J. L.," "T. G." (shall be returned), "A. W. F." (shall be glad to hear), "P. B." "J. R. C.," "J. F." "T. B." "G. T." "W. C." "Cloaca," "Mr. P." "F. H." "W. H. J." "W. C." "W. W." "M. and D." "H. D. C." "A. F. M." (shall have further information), "J. J." (shall appear), "C. and Son." "P. S." "T. G. W." "A. Z." (we are unable to advise. With such acquirements as "A. Z." mentions, he ought not to have any occasion to leave this country), "Foreman of Engineers" (apply at Marlborough House for information), "Subscriber." Brick (look to any "Tutor's Assistant"), "R. W. A." (under the circumstances, the perspectives may be justly re-claimed by the architect), "W. P." (see in present number), "H. W."

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THE Office of Surveyor to the London, Suburban, and Home Counties Permanent Freehold Land and Building Society having become vacant, the Board of Directors will meet on the 26th instant to Elect two Gentlemen to supply the vacancy.—Applications in writing (with testimonials, if any) to be forwarded, sealed up, to the Secretary, 3, Gecilman-street, Doctors'-commons. W. L. HARVEY, Secretary.

January 13, 1853.

MANAGER WANTED, capable of undertaking the entire management of a large Saw-mill and Timber Business. None need apply who are not perfectly competent. Sureties or guarantees will be required. Salary, 240l. per annum.—Address, by letter only, with real name, inclosing references, to X. Y. Z. 43, Argyle-square, New-road.

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THE friends of a respectable and well-educated Youth, aged Fourteen, are desirous of APPRENTICING him to the above business, indoors. A moderate premium will be paid.—Letters to be addressed to Mr. JAMES LONG, Builder, &c. Marsh-gate, Richmond, Surrey.

MASTER PLUMBERS, BUILDERS, &c. wanting JOURNEYMEN PLUMBERS for town or country may be suited by making application at the Plumbers' West End Society House, per Mr. WOODS, Red Lion, Old Cavendish-street, Oxford-street, M. HARRISON, Sec.

THE PERMANENT WAY COMPANY beg to call the attention of Boards of Directors, Engineers, and others interested in railways already made, to the important advantages obtained by FISH-JOINTING the RAILS, as exhibited by the annexed extract from the Report of the Directors of the Eastern Counties Railway to the half-yearly meeting of Shareholders, held on the 25th August. This invention not only saves a large current expense in keeping up the permanent way, but by its causing engines and carriages to run more smoothly, decreases the wear and tear of both the rails and rolling stock, and adds greatly to the comfort and security of the passengers. The importance of making a line of rails as much as possible resemble a continuous bar, and which fish-jointing accomplishes, is increasingly appreciated by engineers. A remarkable instance occurred during the late floods: a train passed safely over some fish-jointed rails that were under water and it was afterwards found that for some distance the whole of the ballast had been washed away. Had the line been fastened by keys only, there can hardly be a doubt that a serious accident would have taken place. The adoption of this system of jointing on the following lines, proves the estimation in which it is held: and there are other lines on the point of applying it:—

Eastern Counties Railway,
East Indian,
Edinburgh and Glasgow,
Egyptian.
London, Brighton, and South Coast,
London and North-Western,
Midland,
Morayshire,
North and South Western Junction,
Waterford and Limerick,
York and North Midland,
York, Newcastle, and Berwick,

Extract from the Report of the Directors of the Eastern Counties Railway to the half-yearly Meeting of Shareholders, held on the 25th August.

"The system of fish-jointing has hitherto fully borne out Mr. Ashcroft's reports, as giving a smoother road, with less wear and tear to the rolling stock, and at a much reduced expenditure in maintenance."

For lines not yet furnished with rails, the company draw attention to W. H. BARLOW'S PATENT RAIL, as by its adoption the permanent way may be constructed at the lowest rate per mile, and with greater durability than by any other known system. These rails have been largely adopted by the engineers of the following Railways:—

Dublin and Belfast Railway,
Great Western,
Hereford, Ross, and Gloucester,
Midland,
Midland Great Western (Ireland),
Northern Railway of France,
Newport and Abergavenny,
South Wales,
St. Germains and Versailles,
West Cornwall.

The Permanent Way Company have received gratifying testimonials in favour of this form of rail from I. K. BRUNELL, Esq. C.E., G. W. HEMANS, Esq. C.E. Dublin, and other eminent engineers.

THE PATENT CAST-IRON SLEEPERS of Mr. P. W. Barlow are adapted to double-headed rails of any pattern, and supersede or replace wooden sleepers. They are adopted on the

Londonderry and Coleraine,
East Indian,
Midland,
East Lancashire,
Londonderry and Enniskillen,

and several other lines.

Extract from the Directors' report to the last half-yearly meeting of the Londonderry and Enniskillen Railway.

"The trial afforded by six additional months' working has also confirmed your directors in the favourable opinion expressed by them respecting the Cast-iron Road of Mr. Peter W. Barlow.

"It has fully answered the expectations formed of it, and there can now be no doubt that its adoption, coupled with the lessened wear and tear from the use of light engines, will effect a material saving in the maintenance of permanent way."

The Permanent Way Company confines itself entirely to the granting licenses to use their various patents, which is done upon very moderate terms.

These several systems have been adopted hitherto to an extent of upwards of 600 miles on the above-mentioned railways.

Every information may be obtained by applying to Mr. CHARLES MAY, C.E. 3, Great George-street, Westminster; or to WILLIAM HOWDEN, Secretary, 28, Great George-street.

CALEDONIAN INSURANCE COMPANY.

Established 1805.

London Offices, 27, Moorgate-street.

DIRECTORS.—John Rannie, esq. Chairman.

John Charles Conybeare, esq. | Joseph Dowson, esq.
John Earley Cook, esq. | George Scamell, esq.

The number of Policies issued annually has been nearly trebled during the last six years.

FIVE-SIXTHS of the profits are divided amongst the assured. At the last Septennial Division a Bonus, amounting in many cases to half the premiums paid, was declared.

Policies may be made indisputable after five years.

Prospectuses, &c. forwarded, on application to

EDWARD F. SEALY, Manager.

SPECIAL NOTICE.

To secure the advantage of this year's entry, proposals must be lodged at the head office, or at any of the society's agencies, on or before 1st March.

SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY.

Incorporated by Special Act of Parliament, 10 Vict. c. 35.

EDINBURGH ..... 26, St. Andrew-square.
LONDON ..... 126, Bishopsgate-street.
The Sums Assured exceed £3,780,000
The Annual Revenue exceeds 140,000
And the Accumulated Fund 690,000

Large Additions have been made to Policies. For example, a Policy for 1,000l. dated 1st March, 1833, becoming a claim after payment of the premium in the present year, would receive 1,514l.; and policies of later date in proportion.

POLICIES RENDERED INDISPUTABLE.—The Directors have arranged that Policies may, under certain conditions, be declared indisputable on any ground whatever, after being of five years' endurance, and the Assured be entitled to travel or reside beyond the limits of Europe, without payment of extra premium for such travelling or residence.

The next Triennial Allocation takes place on 1st March, 1853, when an additional Bonus will be declared.

ROBERT CHRISTIE, Manager.

*** Medical Referees paid by the Society.

Forms of Proposal, and all other information, may be had (free) on application at the Society's Office, 126, Bishopsgate-street, (corner of Cornhill), London. WILLIAM COOK, Agent.

CLERICAL, MEDICAL, and GENERAL LIFE ASSURANCE SOCIETY.

ADVANTAGES OFFERED.

EXTENSION OF LIMITS OF RESIDENCE.—The assured may reside in most parts of the world, without extra charge, and in all parts by payment of a small extra premium.

MUTUAL SYSTEM WITHOUT THE RISK OF PARTNERSHIP.

The small share of Profit divisible in future among the Shareholders being now provided for, without intrenching on the amount made by the regular business, the assured will hereafter derive all the benefits obtainable from a Mutual Office, with at the same time complete freedom from liability, secured by means of an ample Proprietary Capital, thus combining in the same office all the advantages of both systems.

The Assurance Fund already invested amounts to 850,000l. and the income exceeds 130,000l. per annum.

CREDIT SYSTEM.—On Policies for the whole of Life, one half of the Annual Premiums for the first five years may remain on credit, and may either continue as a debt on the Policy, or may be paid off at any time.

LOANS.—Loans are advanced on Policies which have been in existence five years and upwards, to the extent of nine-tenths of their value.

BONUSES.—Five Bonuses have been declared; at the last in January 1852, the sum of 121,125l. was added to the Policies, producing a Bonus varying with the different ages from 24 to 63 per cent. on the Premiums paid during the five years.

PARTICIPATION IN PROFITS.—Policies participate in the Profits in proportion to the number and amount of the Premiums paid between every division, so that if only one year's Premium be received prior to the books being closed for any division, the Policy on which it was paid will obtain its due share. The books close for the next division on 30th June, 1858, therefore those who effect Policies before the 30th June next, will be entitled to one year's additional share of Profits over later assurers.

APPLICATION OF BONUSES.—The next and future Bonuses may be either received in cash, or applied at the option of the assured in any other way.

NON-PARTICIPATING.—Assurances may be effected for a Fixed Sum, at considerably reduced rates, and the Premiums for Term Policies are lower than at most other Safe Offices.

PROMPT SETTLEMENT OF CLAIMS.—Claims paid thirty days after proof of death, and all Policies are *indisputable* except in cases of fraud.

INVALID LIVES may be assured at rates proportioned to the increased risk.

POLICIES are granted on the lives of persons in any station, and of every age, and for any sum on one life, from 50l. to 10,000l.

PREMIUMS may be paid yearly, half-yearly, or quarterly; but if a payment be omitted from any cause, the Policy can be revived within *fourteen* months.

The Accounts and Balance Sheets are at all times open to the inspection of the Assured, or of *persons desirous to assure*.

A copy of the last Report, with a Prospectus and Forms of Proposal, can be obtained of any of the Society's Agents, or will be forwarded free by addressing a line to

GEORGE H. PINCKARD, Resident Secretary.

99, Great Russell-street, Bloomsbury, London.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION.

7, ST. MARTIN'S-PLACE, TRAFALGAR-SQUARE, LONDON.

Established May, 1844.

INVESTMENT OF CAPITAL AND SAVINGS.

The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the surplus capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money out at interest, but unused to seeking securities, and inexperienced in estimating their value, this Institution offers immediate facilities, and an opportunity of realizing the highest rate of interest yielded by first-class securities, in which alone the money deposited with the Association is employed.

Interest payable in January and July.

CAPITAL STOCK, £100,000.

The Capital Stock is altogether distinct and separate from the Depositors' Stock in the Investment Department of this Institution. It constitutes, with the Premium Fund, a guarantee for the engagements of the Association, and has been provided in order to render the security of the Assured complete.

FOR SECURING LOANS OR DEBTS.

Amongst the varied and extensive Tables of this Institution will be found one peculiarly advantageous where Policies are required for securing loans or debts. The rate of Premium by this Table will protect the Interest of the Policy-holder from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.

MUTUAL ASSURANCE.

Assurances may be effected from 50l. to 10,000l. on a Single Life. Entire profits belong to the Assured, and divided annually. Credit for half the amount of the first five annual Premiums. Medical men remunerated for their Reports. Liberty to Travel, and Foreign residence greatly extended.

COLLEGE EDUCATION.

A Novel Table has been constructed expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a Child, either an Annuity, payable from the age of 17 to 23, or an equivalent amount in money.

Other new and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.

The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a particular Individual, or as a resource against the casualties of age, involving, as it does, the uncertainties of health and fortune.

Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom.

PETER MORISON, Managing Director.

Applications for Agencies may be made to the Managing Director.

TO ARCHITECTS, BUILDERS, CONTRACTORS, &c.

HARTLEY'S PATENT ROUGH PLATE GLASS,

1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs.; and 1-4th, or 4 lbs. to the foot, for

RIDGE AND FURROW ROOFS, GREENHOUSES, RAILWAY STATIONS, ENGINE SHEDS, MILLS, MARKET HALLS, AND PUBLIC BUILDINGS GENERALLY.

It being universally admitted that Glass in Roofs of a permanent character should not be less than one-eighth of an inch thick, weighing two pounds to the foot, Messrs. JAMES HARTLEY and CO. have directed their attention to the manufacture of a description of

ROUGH PLATE GLASS THAT COMBINES SIZE AND STRENGTH WITH ECONOMY OF COST.

The PATENT ROUGH PLATE is manfactured in sizes expressly for Ridge and Furrow Roofs, giving a span of from 8 to 12 feet, at a price not exceeding weight for weight that of common Crown Glass Not being transparent, blinds are unnecessary, and when used in Greenhouses no scorching occurs; its NONTRANSPARENCY and strength render it eminently suitable for the Glazing of Conservatories and Roofs of all kinds; also Factories, Workshops, &c., for which purposes it is supplied in squares of all sizes, from 8 by 6 inches and upwards.

For further information apply to Messrs. JAMES HARTLEY and CO., Wear Glass Works, Sunderland.

N.B.—The Patent Rough Plate is supplied at a much lower cost than the common Rough Plate.—May 1, 1851.

GLASS.—HARTLEY AND CO.'S GLASS TARIFF NEWSPAPER

Will be forwarded Gratis, on application, "post-paid," to

Messrs. JAMES HARTLEY and CO. Wear Glass-works, Sunderland; or Purfleet Wharf, Earl-street, Blackfriars, London.

TO BUILDERS, PLUMBERS, &c. &c.

THE SUNDERLAND CROWN GLASS COMPANY, Peerless-place, City-road (a few doors from the turnpike).

Crown Glass in crates and squares, Foreign Sheet Glass, Polished and Patent Plate, Ornamental and Stained Glass, Water-closets, Sheet Lead, and Patent Pipe, Plumbers' Brass Work, and every article in the trade.—N.B. Depôt for Hartley's Patent Rough Plate Glass.

E. and W. H. JACKSON beg to call the attention of Builders and the Trade to the LOW PRICES of their PATENT PLATE GLASS, BRITISH PLATE, silvered and for glazing, of unrivalled quality and finish; ROUGH PLATE, CROWN, SHEET, COLOURED, and ORNAMENTAL GLASS, in every variety, of the best manufacture, at the lowest terms. Designs and estimates furnished for ornamental windows, either for house or church decoration.—All applications for estimates and lists of prices to be made at their warehouse, 315, OXFORD-STREET.

TO BUILDERS, PLUMBERS, &c.

JAMES MILES'S cheap ENGLISH and FOREIGN WINDOW-GLASS WAREHOUSE, 18, Church-street, Shoreditch, near the Eastern Counties Railway Terminus. Cases of foreign sheet, various sizes, 41s. 200 feet; crates of sheet, 14 to 16 oz. 3½d. per foot; good crown C C C, 18, 29s. 6d. and also C C, 15, 23s. per crate; patent plate; Hartley's ROUGH PLATE; stained, ground, and ornamental glass; crown squares of every size in stock; sheet lead; pipe; patent gas-pipe; solder and plumbers' brass work of all kinds; white lead, oils, and colours, at low prices; LARGE STOCK of PAPERHANGINGS; old lead bought in any quantity, or taken in exchange. Sashes glazed and primed in oil at very low prices, in any quantity.

PLATE GLASS.—ALFRED GOSLETT respectfully begs to inform the trade that the Plate Glass Tariff has recently undergone a complete revision, that Plate Glass generally, but more particularly LARGE-SIZED GLASS, has been considerably reduced in price, and that he is prepared to forward tenders for the supply of any quantity upon application.—Soho Crown, Sheet, Patent Plate, Plate Glass, and Wholesale Looking-glass Manufactory, 26, Soho-square.

CHEAP ORNAMENTAL GLASS.—I beg to inform my friends and the public, that I have now completed a new ENGINE, and, owing to the facility with which I can execute orders, I am enabled to reduce my former prices considerably. The prices are now from ONE SHILLING PER FOOT SUP. and Borders from SIXPENCE PER FOOT RUN. large quantity of the cheapest patterns always in stock. ing and painted work on the most moderate terms. CHARLES LONG, No. 1, King-street, Baker-street, Portman-square.—Cash only.

DECORATIVE PAINTING.—Mr. FREDERICK SANG, from the Royal Academy of Munich, DECORATIVE ARTIST in FRESCO, and in all other manners of Painting; whose works may be seen in the principal public buildings of the metropolis, begs to inform his patrons and Architects in particular, that he has considerably increased his Establishment, and is now enabled to undertake, on the shortest notice, the embellishment of private and public buildings, in any part of the United Kingdom, on the most reasonable terms, and in any of the Classical, Mediæval, or Modern Styles.—Apply to F. SANG, Decorative Artist, 58, Pall-mall, London.

Medieval Works, Memorials, Fonts, Screens, etc.

AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave-place, Pimlico.

MARBLE CHIMNEY-PIECES manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price.

A GOOD MARBLE CHIMNEY-PIECE FOR FORTY SHILLINGS.

A liberal discount to the Trade.

MARBLE WORK in all its branches, at a remarkably cheap rate, for HALLS, DAIRIES, LARDERS, &c. &c.

Circulars sent on application.

N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

CORSHAM-DOWN, and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all Orders and Inquiries for the above Stone will be promptly attended to by being addressed to MARKET-WHARF, REGENT'S PARK-BASIN.

MARBLE.—Mr. J. FABBRICOTTI, of Carrara, Italy, Proprietor of Marble Quarries, and the only person in the United Kingdom selling Italian Marble the produce of his own quarries, begs to inform the gentlemen connected with the marble trade that he has established, in London, the most extensive Depôt of Statuary, Veined, Sicilian, Dove, and Black and Gold Marbles, at CARRARA WHARF, THAMES BANK, PIMLICO, the foot of Vauxhall-bridge.—Office, 8, Crescent-terrace, Millbank, Mr. THOS. THOMPSON, Agent.

MARKET WHARF, REGENT'S PARK BASIN.—MARTIN and WOOD solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derby Stone; also Bangor Slates, Lime, Cement, Plaster, Bricks, Tiles, Laths, Fire-goods, Fire-stone, &c. sold at the lowest possible prices for Cash. Portland Head-stones, Ledgers, Steps, Landings, &c. cut to order on the shortest notice. Tarpaulings let on hire. A Stock of Northen's Drain Pipes, Syphons, &c. always on hand. Mortar, Lime, and Hair, Fine Stuff, &c. Prompt attention paid to country orders.

VALENTIA SLATE SLABS.—The Valentia Slab Company invite attention to their Slabs now supplied, of very large dimensions and of superior quality. They have been used at the British Museum, National Gallery, Bethlem Hospital, various lunatic asylums, the Ordnance Works, Model Prison, Pentonville, and other penitentiaries, Malting Floors in Bedfordshire and Hertfordshire, Breweries, the Race Stand at Brighton, Portsmouth Barracks, and are kept in stock in large quantities at Freeman's Wharf, Millbank-street; also by Messrs. SHARPE, Tooley-street; and Messrs. BRABIN, Belvedere-road, where terms may be obtained.

THE PIMLICO SLATE-WORKS. Patronized by Royalty, the Heads of the Nobility, the Clergy, Architects of Eminence, Builders, Railway Contractors, and the Public generally.—MAGNUS'S ENAMELLED SLATE (notwithstanding the vile imitations and infringements of his patent that are attempted), continues to grow in favour with the public, being handsomer, more durable, and very much cheaper than marble.—Price-lists and a sheet of drawings, sent to any part of the kingdom gratis. Cisterns, Filters, Dairy and Larder Shelves, Wine Cellar Fittings, Slabs, and every variety of plain Slate-work, at prices that defy competition.—39 and 40, Upper Belgrave-place.

BATH STONE DEPOT, Great Western Railway, Paddington.—EDWARD FLUESTER respectfully informs Builders, Masons, and Others, that he continues to supply the Box-hill Ground Stone, Corshamdown, Coombedown, and Farleighdown Stone, of the best quality, and at the lowest prices. Painswick and Forest of Dean Stone in blocks, steps, landings, or slabs of any thickness.—N.B. Stone and other goods landed and carted.

BATH STONE OF BEST QUALITY.

RANDELL and SAUNDERS, QUARRYMEN AND STONE-MERCHANTS, BATH.

(DEPOTS.)

Great Western Railway Station....	PADDINGTON.
Great Western Railway Station....	BRISTOL.
Hope-street, Mount-pleasant	LIVERPOOL.
Castle-fields	MANCHESTER.

List of prices at the quarries and depots, also cost for transit to any part of the kingdom, furnished on application to Bath Stone Office, Corsham, Wilts.

PAVING.—CHEAP TOOLED PAVING. NO ADVANCE in PRICES by R. and W. STURGE.—Builders and others are particularly invited to inspect—Sinks reduced to 1s. 8d. per foot; Coping Sills, Steps, &c.; Selfaced Paving and Slab. Country builders supplied with a priced list, free, on application. The quality and prices must ensure general approval. N.B.—Cash prices on the wharf.—E. and W. STURGE, Bridge-wharf, City-road. Established 1831.

PORTLAND CEMENT.—JAMES WESTON having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require, either at his Works, Mill-wall, Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster. Manufacturer of Roman, Lias, and Mastic Cements, French and English Plaster, &c.

PORTLAND CEMENT.—THOMAS FREEN and CO. having completed their works at WOULDHAM-ON-THE-MEDWAY for the manufacture of PORTLAND CEMENT, beg to inform their friends and the public that they are now ready to supply them with cement of superior quality on reasonable terms.—Roman Cement and Plaster of Paris Works, Tuscany Wharf, Canal-road, Kingsland-road.

6, South Wharf, Paddington.

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality (a desideratum never before attained in Portland Cements). It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn green, or crack, combined with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the monopoly. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

PORTLAND CEMENT WORKS, NORTHFLEET, KENT.—Messrs. ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture of the same in 1852, together with the most perfect uniformity in colour, will ensure to them a continuance of that patronage with which they have so long been favoured.—Orders received at the Works, and at Great Scotland-yard, Whitehall.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength has hitherto prevented its more general use. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by CHARLES J. HILTON, at his Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharfs in London, 6, Upper Thames-street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent.

MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but is much better adapted to engineering works, from the rapidity with which it sets and hardens under water. It has been long used at the great Breakwater at Cherbourg; in a similar work at Alderney; and at Dover New Pier, to unite the masonry. The foundation of the centre pier of the Tubular Bridge at Menai Straits is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material but this cement and sea shingle. The work extends 200 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The inconvenience of the varied qualities of Roman Cement are superseded by the use of this improved manufacture.

CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight.

Agent for Southampton, R. L. PLUDER, American Wharf.

ROMAN and OTHER CEMENTS. Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Tarras and Portland Cements. English and French Plaster, Terra Cotta Chimney Pots, Trusses, &c.

Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth; and Paddington-basin.

NOTICE.—To MANUFACTURERS of CEMENT, and especially those calling themselves makers of "PORTLAND."—ASPDIN, ORD, and Co. beg to inform the Trade, that on the 10th of FEBRUARY, 1853, they intend to EXHIBIT at their PREMISES, New-wharf, Abingdon-street, Westminster, a SERIES of EXPERIMENTS, showing the extraordinary powers of their CEMENT, and its great superiority over all others manufactured. ENGINEERS, ARCHITECTS, CONTRACTORS, and BUILDERS, are respectfully invited to attend the same. Manufacturers desirous of testing any kind of Cement with "Aspdin's Patent Portland," are requested to make the same known to ASPDIN, ORD, and Co., who will afford them every information and assistance relative to the proposed experiments.—New-wharf, Abingdon-street, 15th December, 1852.

WILLIAM ASPDIN'S PATENT PORTLAND CEMENT.—Messrs. ASPDIN, ORD, and CO. have much pleasure in informing consumers of this valuable Cement that as their works are now in operation they are prepared to execute any orders they may be favoured with.

New Wharf, Abingdon-street, Westminster, Sept. 23, 1852.

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, leaving scarcely any core. The satisfaction constantly expressed by Engineers, Architects, and Contractors, of the above, is its best recommendation.

Gibbs, Canning, and Co.'s Blue Vitrified Bricks, Pipes, Junctions, Bends, and Fire Goods.

ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS Cements of the best quality.

SECONDS, PAVIORS', STOCKS, and other Bricks.

CHARLES RICHARDSON, 6, South Wharf, Paddington.

PARIAN CEMENT for internal use, to be PAINTED IN A FEW HOURS AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, and Manufacturers of Roman and Portland Cement, &c. &c. Nine Elms, London.

PERMANENT STUCCO WASH, WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.

As used at St. George's Hospital, Hyde Park Corner.

JOHNS and CO. having effected some important improvements in the manufacture of this very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over the common Lime Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tinted to any other—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Railway Stations, Union Workhouses, Barracks, Schools, Prisons, &c. One cwt. will cover 250 square yards. It will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.

JOHNS and CO.'S STUCCO CEMENT.—This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, places it above all other materials of its kind; it has no caustic qualities; may be painted or papered in a few days; never blisters, cracks, or vegetates; soon becomes as hard as stone; and may be cleaned with a brush and water.

The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, prospectuses, and every information may be obtained, on application to the Sole Agents, PHILIP HARE and CO. at the Warehouse, 22, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

TO ARCHITECTS, BUILDERS, &c.

ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by J. HERBERT and SON, Modellers, &c. 42, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

GEO. & THOS. EARLE, CEMENT MANUFACTURERS, HULL.—Light and Dark, equal to any made. Manufacturers also, and dealers in Plaster, Paris White, Mastic, Hair, Lias Lime, Laths, Slates, and Slate Slabs, Firebricks, Grindstones, Cement Chimney-tops, ditto Vases, Ridging, &c. Paints, Stucco, &c. Merchants and Importers of Puzzolano.

PURE PATENT WHITE ZINC PAINT, of the VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM.—This Paint is superior in every respect to White Lead, which it surpasses in whiteness and brilliancy; it grows very hard after it is applied, and is therefore susceptible of a very high polish. It is unaffected by sea-water, sulphuretted hydrogen, or any other gases.

WHITE ZINC PAINT having none of the poisonous qualities of White Lead, avoids the dangerous sickness to which workmen, as well as persons inhabiting newly-painted houses, are subject.

The VIEILLE MONTAGNE COMPANY import the Oxide in casks bearing their mark, VM, without which none are genuine, and is to be obtained dry or ground at the Company's Agents at the following places, viz.:—London, Liverpool, Birmingham, Hull, Newcastle, Leith, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, Jersey, Portsmouth, Poole, and the Isle of Wight; and from Messrs. Blundell, Spence, and Co. Hull. It may also be obtained from the Grinding Agents, Messrs. C. DEVAUX and Co. 63, King William-street, City. Wholesale Agents, Mr. CHARLES JACK, 3, Tottenham-court, New-road, and 30, Upper Thames-street, who sells it in kegs of 14 lbs. 28 lbs. 56 lbs. and upwards, at low rates; and Messrs. R. ANDERSON and CO. Timber-bush, Leith, wholesale and retail.

The Company also employ a painter, who will undertake any description of painting in Zinc by contract.

Since its introduction into the United Kingdom, the Admiralty and the most eminent professional men have given it their preference. The public is cautioned, that if White Zinc Paint is adulterated, it becomes a very inferior paint, and peels and washes off.

For further particulars apply to Mr. H. T. SCHMOLL, General Agent for the United Kingdom, at the Company's Offices, 12, Manchester-buildings, Westminster.

THE VIEILLE MONTAGNE ZINC MINING COMPANY beg to inform the public that they have appointed Messrs. T. and S. KNIGHT, of Great Suffolk-street, Southwark, as their painters, who will be ready to execute any description of painting and decorating with the Pure Patent White Zinc Paint.